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HOUSE OF COMMONS
Second Session—Twenty-sixth Parliament

1964

Government
Publications

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 13

FRIDAY, APRIL 24, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESSES:

J. W. Libby, Caseco Consultants Ltd.; Dr. R. L. Hearn, C.B.A. Engineering
Company Ltd., Dr. H. Q. Golder, Consulting Engineer.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

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Chatterton,	Herridge,	Pugh,
Davis,	Kindt,	Ryan,
Deachman,	Klein,	Stewart,
Dinsdale,	Langlois,	Turner,
Fairweather,	Laprise,	Willoughby—35.
	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.



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MINUTES OF PROCEEDINGS

FRIDAY, April 24, 1964

(23)

The Standing Committee on External Affairs met at 9.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Fairweather, Gelber, Haidasz, Her-ridge, Kindt, Laprise, Leboe, Macdonald, Matheson, Nesbitt, Pugh, Ryan, Stewart, Turner, Willoughby (21).

In attendance: Mr. J. W. Libby, representing Caseco Consultants Ltd., and G. E. Crippen and Associates Ltd.; Mr. S. O. Russell, Hydraulic Engineer, Caseco Consultants Ltd., Vancouver; Dr. R. L. Hearn, President, and Mr. A. J. Ring, Project Manager, C.B.A. Engineering Company Ltd., Vancouver; Dr. Hugh Q. Golder, Consulting Engineer, Toronto.

The Chairman introduced Mr. Libby and Mr. Russell.

Mr. Libby made a statement on behalf of Caseco Consultants Limited and G. E. Crippen and Associates Limited, was questioned, and retired.

Dr. Hearn and Dr. Golder were called.

Dr. Hearn read a prepared brief on behalf of C.B.A. Engineering Limited, and Dr. Golder made a brief statement. The witnesses were questioned, and retired.

Mr. Byrne suggested that the committee should summon an expert in international law as a witness. The Chairman said the steering committee would give consideration to this suggestion.

At 11.00 a.m., the committee adjourned until 4.00 p.m., Monday, April 27, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

FRIDAY, April 24, 1964.

The CHAIRMAN: Gentlemen, I see a quorum. Our witnesses today are J. W. Libby, representing Caseco Consultants Ltd., and G. E. Crippen & Associates Ltd., both of Vancouver; Dr. R. L. Hearn, president of C.B.A. Engineering Company Ltd., of Vancouver; and Dr. Hugh Q. Golder, consulting civil engineer of Toronto.

I now introduce Mr. J. W. Libby, a professional engineer. Mr. Libby is a registered professional engineer in the province of British Columbia and licensed to practise in the province of Saskatchewan.

He graduated from the Massachusetts Institute of Technology in 1943 in civil engineering.

He is vice president and assistant chief engineer of G. E. Crippen & Associates Ltd. of Vancouver, B.C., formerly Crippen-Wright Engineering Ltd; and is a member of the board of engineers of Caseco Consultants Ltd., of Vancouver, B.C.

As assistant chief engineer, Mr. Libby has been responsible for completion of design of the Squaw Rapids Project in Saskatchewan, design of the power plant of the South Saskatchewan Dam, review of Mica Dam design of the Columbia river, repairs to the Kemano tunnel and other similar projects.

In the field of river basin studies, he has supervised development studies of the Saskatchewan river in Saskatchewan, the development of the Lower Nelson river in Manitoba, and is deputy study director of a 3-year study of power resources in south central Brazil. He has been involved in development studies and design on the Columbia river since the fall of 1960.

In earlier appointments, he was construction engineer for three and one-half years on the power phases of the Alcan project near Kitimat, B.C.

Mr. Libby has particular experience in the design of large fill-type dams, notably the Furnas and Tres Marias projects in Brazil, the Karnafuli project in East Pakistan, and others.

He is a member of: Engineering Institute of Canada, Canadian National Committee of the International Congress on Large Dams, American Society of Civil Engineers and has published several papers for engineering journals.

He is accompanied by Mr. S. O. Russell, who is also a professional engineer. Mr. Russell is a registered professional engineer in the province of British Columbia. He graduated from Queen's University of Belfast (in Northern Ireland) with B.Sc. in civil engineering in 1953 and M.Sc. in hydraulics in 1954. He is the hydraulic engineer of Caseco Consultants Limited, and has been engaged on the study of the hydrology of the Columbia basin and the design of the Mica project. He has had 7 years experience in the field of river basin studies and hydroelectric design and 2½ years experience on construction.

Gentlemen, I now give you Mr. Libby.

Mr. J. W. LIBBY (*Representing both Caseco Consultants Limited and G. E. Crippen & Associates Ltd. of Vancouver*): Thank you, Mr. Chairman and members of the committee. I am here this morning on behalf of Caseco Consultants Limited. Mr. Crippen wishes me to extend his apologies for not being here this morning owing to serious illness in his family which prevents him from coming. So I am here primarily to present the brief of Caseco Consultants Limited with special emphasis on the Mica Project.

Brief Concerning the Columbia River Treaty and Protocol

The following submission is presented on behalf of Caseco Consultants Limited by Mr. J. W. Libby, P. Eng., a member of the board of engineers of Caseco Consultants Limited and vice president and assistant chief engineer of G. E. Crippen & Associates Ltd. Caseco Consultants Limited is a Vancouver engineering company jointly owned by the consulting engineering firms of G. E. Crippen & Associates Ltd. of Vancouver, H. G. Acres & Co. Ltd. of Niagara Falls, and The Shawinigan Engineering Co. Ltd. of Montreal. These companies have designed some 60 hydroelectric projects in Canada with a total installed capacity of over 15,000,000 horsepower, representing over 50 percent of the total installed hydroelectric capacity in Canada. Noteworthy among these projects are Shipshaw, Bersimis Nos. 1 and 2, Manicouagan No. 2, John Hart, Bridge River No. 1, Beechwood, Carillon, and Squaw Rapids.

The seven-man board of engineers of which I am a member is composed of senior representatives from the three shareholder companies and Caseco, who meet periodically to study and review the engineering work in progress. The board has available for consultation and advice, engineering consultants of world-wide reputation, each eminent in a particular field. These include Drs. A. Casagrande and R. B. Peck in the field of soil and rock mechanics and, until recently, the late Mr. E. B. Burwell Jr., engineering geologist. Final responsibility for all engineering assignments undertaken by Caseco rests with the Board.

Caseco Consultants Limited was formed early in 1961 to carry out engineering work on the Columbia river for the British Columbia Hydro and Power Authority (then the British Columbia Power Commission). Since its formation, the company studied the overall development of the Canadian portion of the Columbia river within the terms of the proposed international treaty, analysed the hydrology of the Columbia river basin, and determined the most suitable type and site of dam for the major upstream reservoir. At present the company is engaged on the detailed engineering of this project.

In a letter to Dr. Keenleyside dated March 13, 1964, which has been presented to this committee, Mr. A. W. F. McQueen, president and chief engineer of Caseco Consultants Limited, expressed his views concerning the treaty and the Mica project. The submission which follows serves to expand these views.

Columbia River Development

The study made by Caseco Consultants Limited of the overall development of the Columbia river basin in Canada was based on the severe assumption that the Canadian Columbia plants would be operated as an entirely independent system. After examining alternative sequences of development it was found that:

1. Under the overall treaty scheme, it would be feasible to develop the Columbia in Canada step by step and achieve a satisfactory pattern of generation at all stages of development. At the same time, it would be possible to operate the storage reservoirs to obtain downstream power benefits and provide flood control in both Canada and the United States.

2. It was also found that the three treaty storage reservoirs, Mica, Arrow, and Duncan, were well chosen. Mica will provide the main storage reservoir on the upper Columbia and, in addition to earning downstream benefits in the United States, its main purpose from Canada's point of view will be to regulate releases for generation at site and at the two major power sites, Downie and Revelstoke, immediately downstream. Ultimately these three plants, with a total installed capacity of approximately 3400 megawatts, would have an annual

output of about 15 billion kilowatt hours of firm power. To improve regulation of flows through this main power reach of the Columbia, it was found that it would be economically advantageous to provide 12 million acre-feet of live storage at Mica, 5 million more than committed under the treaty. With 12 million acre-feet of storage, it would be possible to provide virtually complete regulation of the Columbia at Mica. The 5 million acre-feet of uncommitted storage greatly increases the flexibility of Canadian operations.

3. The Arrow reservoir will provide 7.1 million acre-feet of storage. By reason of its short construction period, it will be credited with a considerable proportion of the resulting downstream power benefits in the United States and, due to its location, with 52.1 of the 64.4 million dollars to be paid to Canada for flood control. It is of interest to note that the sum of the flood control payment and the credit for downstream benefits obtainable during the first four years of operation, before Mica is completed, will approximately equal the capital cost of the Arrow project.

Mr. KINDT: Are you sure of that?

Mr. LIBBY: These are the figures we have, Mr. Chairman.

Mr. HERRIDGE: I suggest, Mr. Chairman, that we let the witness proceed and then ask questions.

Mr. LIBBY: However, from the Canadian point of view, the main value of the Arrow project lies in its ability to act as a reregulating reservoir after power plants have been installed at Mica, Downie and Revelstoke. When generating firm power for use in Canada, releases from these three major plants would be out of phase with American requirements. The Arrow reservoir would be able to almost completely reregulate releases from upstream and hence reconcile Canadian and American flow requirements, so that Canada would be able to generate power to suit its own load demand and at the same time provide the flows at the United States border necessary for optimum downstream benefits. The Arrow project therefore proved to be the key to Canada's ability to produce firm power in the Columbia basin while still obtaining maximum payments from the United States.

4. The Duncan reservoir, with 1.4 million acre feet of live storage, will provide almost complete regulation of flow in the Duncan river at the dam site. In addition to providing controlled releases for downstream benefits, the Duncan project will provide valuable assistance in regulating flows at the Kootenay river power plants downstream of Kootenay lake by withholding water during the summer high flow period and releasing it when required in winter.

5. The Libby project on the Kootenai river in Montana with about five million acre feet of live storage will regulate discharges and thus make possible construction of the Kootenay canal plant which will provide at low cost a considerable increase in Canadian power generation on the Kootenay river downstream of Kootenay lake. Under the treaty and protocol, the Libby project will be operated under agreed plans and, if necessary, the releases can be reregulated under most conditions by Kootenay lake in co-ordination with releases from the Duncan project, to suit Canadian requirements.

The studies made by Casco Consultants Limited therefore show that the Treaty is well conceived and provides a sound basis for the economical development of the power resources of the Columbia basin. Its terms are not merely fair but definitely advantageous, both to the province of British Columbia and to Canada as a whole.

Mica Project

The Mica project will involve the construction of a fill-type dam and associated hydraulic structures on the Columbia river near the Big Bend, some 92 miles north of Revelstoke. The dam will rise 650 feet above the river-bed, create a reservoir which at a full pool elevation of 2475 will be 135 miles long, cover an area of some 110,000 acres, and provide 12 million acre feet of usable storage.

During the last 15 years, the Mica project has been studied in a preliminary manner by numerous agencies and their consultants, and during the past three years, Casco Consultants Limited has been continuously engaged on design studies for the project and has carried out extensive field investigations at the site. One of the first studies which Casco Consultants Limited undertook was to select the most favourable location for the major storage reservoir, since there appeared to be several possible alternative sites in the reach of river upstream of Revelstoke. Economic and feasibility studies of all reasonable alternatives were made and the Mica site was finally confirmed for the major storage dam in a scheme which includes the two downstream power sites at Downie and Revelstoke to utilize the regulated flows from Mica to produce low cost power.

Several types of fill and concrete dams were considered suitable for Mica and, in comparing these alternatives, factors such as safety, precedent, capital cost, and construction time were carefully evaluated. A rockfill dam was finally selected because it would impose lower stresses on the foundations and would be no more expensive than any other acceptable alternative. For construction of the dam, abundant quantities of relatively low cost fill materials which would require virtually no processing, are available in the general vicinity of the dam site.

Detailed studies of the hydrology of the Columbia river basin were undertaken in order to obtain data for the design of the spillway and outlet works. These studies were made with the advice and assistance of the hydrometeorological branch of the Department of Transport and Mr. B. S. Barnes, a consulting hydrologist of international repute. All available basic data, such as river flow characteristics and meteorological information were carefully reviewed and used to derive the design flood which at Mica has a peak of 246,000 cfs, about 2.2 times the maximum recorded flow. Although the possibility of a flood of this magnitude occurring at any time in the future is extremely remote, all permanent hydraulic structures will be designed to ensure that such a flood can be routed through the reservoir without danger of overtopping the dam.

Beginning in 1961, extensive field investigations have been conducted to prove the competency of the dam foundations, to locate a sufficient volume of suitable low cost fill material and concrete aggregate for the dam and appurtenant structures, and to explore rock conditions for the diversion works. During this period, some 100 holes totalling 25,000 lineal feet have been drilled at the Mica site and many rock cores and samples have been secured for examination. All investigations to date have shown the bedrock at the Mica site to be entirely satisfactory as a foundation for the selected fill-type dam, the spillway and outlet works, and the future power facilities. Numerous laboratory tests of pervious and impervious materials available for construction have verified their suitability for a dam of the required height.

The construction schedule for the Mica project has been reviewed in considerable detail following release of the protocol to the treaty. No difficulty is anticipated in completing the project within eight years, commencing with diversion tunnel construction in 1965. Similarly, the schedule of quantities and estimates of cost has been reviewed to confirm that the estimate of capital cost for the Mica project structures, as supplied to the negotiators of the protocol, provides a sufficient margin against contingencies which may arise during the course of construction.

Safety of the dam at Mica is a paramount consideration and has received very careful attention. It is planned to remove all foundation materials which can in any way be considered suspect and the dam is being designed to be stable under earthquake loads. The board of engineers of Caseco Consultants Limited and their specialist consultants are confident that the arrangement of the dam and appurtenances will provide a completely safe and permanent structure.

That completes the presentation.

The CHAIRMAN: The first name on my list is Mr. Davis, and then Mr. Deachman. I have no other names.

Mr. DAVIS: Mr. Chairman, first I would like to ask Mr. Libby about estimates of capital costs of the Mica creek project. I note with some interest on page 91 of our white paper that the estimated capital cost in 1961 was \$247.2 million, and that the estimates which we now have—and they appear on page 138 of the same publication—total \$245.2 million. In other words, the capital cost estimates now are a little different from those prepared three years ago. Are you confident that the \$245.2 million estimate for completion in 1973 would be realized?

Mr. LIBBY: Yes, Mr. Davis, I am. One reason for the change is the slightly increased height in the dam, which has been increased approximately 25 feet since the time of that estimate.

Mr. DAVIS: The materials now are readily available and this was not determined a few years ago.

Mr. LIBBY: Well, at the time of the first estimate there had not been nearly as much investigation in respect of suitable materials as has been the case during the last three years, when there has been a very extensive investigation of materials available for construction; and we will utilise those materials which are best suited to the dam.

Mr. DAVIS: In other words, is it correct that closer examination has proven this is a better site than originally anticipated?

Mr. LIBBY: I would say this is generally. At the time of the original investigation there was limited information, but we have confirmed that the site is a very good site for a dam of this height.

Mr. DAVIS: Does this estimate of \$245.2 million include all the usual costs of expropriation, taxes, and so on, and does it include sales tax?

Mr. LIBBY: Yes, I understand these are included.

Mr. DAVIS: As well as materials and equipment?

Mr. LIBBY: Yes, materials and equipment. This is the first stage storage component we are speaking of at this time.

Mr. DAVIS: And there is no provision for generators in this estimate?

Mr. LIBBY: Not in this estimate.

Mr. DAVIS: Are foundations going to be laid and arrangements made so that generators and so on can be installed at a later date?

Mr. LIBBY: Yes, there will be provisions in the first stage for the intake area to the power house, and this is included in this estimate.

Mr. DAVIS: Are you confident the project can be completed on time, that is nine years after the date of ratification, or presumably 1973?

Mr. LIBBY: Yes, we are confident that the project can be completed on schedule with relative ease. We now have had the opportunity of completing a major part of the field investigation in respect of the engineering and this permits surety of completion of the schedule.

Mr. DAVIS: Has the dam been designed in such a way that it subsequently can take advantage of the additional waters resulting from diversion? I am referring to Canal Flats in the first instance and, subsequently at Bull river, Luxor and Dorr.

Mr. LIBBY: Yes, the dam is set at such a height that it can accommodate this diversion and provide total useful storage at this elevation, which is determined to be economical. The intake to the power plant will provide for this.

Mr. DAVIS: Those are all my questions.

The CHAIRMAN: Have you a question, Mr. Deachman.

Mr. DEACHMAN: Yes, I have.

Mr. Libby, in your experience, in the construction of dams of this kind to to what extent do the contractors draw upon the local area for materials and equipment; in other words, what is the economic impact upon the communities immediately surrounding the site.

Mr. LIBBY: It has a very great impact on the immediate area, the local supply points and local town sites. Usually a fair amount of the labour is provided from these areas and all the services contingent with such a large construction project become very important to the area.

Mr. DEACHMAN: Mr. Libby, could you describe in more detail what these services would be and, perhaps, give members of the committee some examples with regard to the types of service in these surrounding communities this would draw upon?

Mr. LIBBY: Mr. Deachman, one type of service which immediately comes to mind is the supply services, for instance railroad locations and trucking facilities which handle fuels and cements as well as all the other supplies which go into the area, and the processing of the men through these areas with their families. Of course, these men usually form a large portion of the labour force, and these become rather large components. In most of these areas the communities must expand to support a labour force of this type.

Mr. DEACHMAN: Would what you have said apply in respect of the area of Revelstoke?

Mr. LIBBY: Yes, it would.

Mr. DEACHMAN: And, am I correct that all these services which relate to the men on the job generally are drawn from the surrounding areas and, therefore, this would have an impact upon their economy.

Mr. LIBBY: Yes, a very great impact.

Mr. DEACHMAN: And, would that influence extend to the cities of Vernon, Kamloops and surrounding areas?

Mr. LIBBY: I would imagine from the labour point of view it would.

Mr. DEACHMAN: And, would it also have its effects on the labour market in the Salmon Arm area?

Mr. LIBBY: Yes. I think a good example of this is a project such as Kitimat, with which I am acquainted, where there was a very large construction force which resulted in a very large community, and this had the effect of building up services in that whole area.

Mr. DEACHMAN: Referring in particular to the city of Vancouver, what major purchases would be made from the industries located there? Would this particularly affect the cement industry?

Mr. LIBBY: Yes, there is a large quantity of concrete required in the first stage for spillway facilities, outlet facilities and release structures, and one of the obvious sources for cement is from existing plants in the area, namely Vancouver at present.

Mr. DEACHMAN: Would there be any other major purchases in the Vancouver area that come to your mind which would be used in this construction?

Mr. LIBBY: A great deal of major equipment would come from the dealers in this area and fuel supplies probably would be brought in through some of these areas; in addition, a good proportion of wholesale business would be there.

Mr. DEACHMAN: So the impact upon the city of Vancouver itself is going to be very considerable over a period of years?

Mr. LIBBY: Yes, I would believe so.

Mr. DAVIS: I have a supplementary question. What might be the peak labour force on site in the vicinity of Mica creek, including Revelstoke?

Mr. LIBBY: I think the peak labour force for the first stage is approximately 3,500.

Mr. DAVIS: And would the numbers of the labour force pick up rather soon and then slope off? Typically, how does it develop in a project of this sort?

Mr. LIBBY: In this project the first stages will be access roads and diversion tunnels, together with camp supports, and these normally do not require large numbers of men. But, because they are very necessary services, the labour force would build up over probably a two year period until the fill portion of the dam was commenced. When this was commenced the labour force would be near maximum, with a few peaks during this period for concrete construction to meet the necessary schedules; this would last approximately a little over four years and then it would diminish toward the end.

The CHAIRMAN: Mr. Herridge, you are next.

Mr. HERRIDGE: Mr. Libby, when you came to your conclusions in respect of the dams mentioned in the treaty did you give any consideration to constitutional problems, the human or sociological values? Did you give any consideration to these things or to resource values such as land, wildlife or recreational facilities. Is that the case, or is this recommendation based purely on your engineering studies from the point of view of power?

Mr. LIBBY: This engineering study was made, as we say, in the first part of our brief, of the Columbia river development when it was to be operated as an entirely independent system under the proposed treaty conditions. The costs of these projects that were considered there, in my understanding did include all those features or considerations that you mentioned in respect of the assessment of the land values.

Mr. HERRIDGE: I was referring to something a little broader than that. I was referring not only to allowances for compensation, but the sociological and human values concerned including recreational facilities and the destruction of many miles of beaches.

Mr. LIBBY: I believe you are talking about the intangible costs and benefits. These were not evaluated by our firm.

Mr. HERRIDGE: In paragraph 2 on page 2 of your submission there is an interesting statement which reads as follows:

To improve regulation of flows through this main power reach of the Columbia, it was found that it would be economically advantageous to provide 12 million acre-feet of live storage at Mica, five million more than committed under the treaty. With 12 million acre feet of storage, it would be possible to provide virtually complete regulation of the Columbia at Mica.

Would you explain that statement in view of the fact that we are repeatedly told that the principal value of the High Arrow dam is that it provides an opportunity for re-regulation? These facts seem to be contradictory.

Mr. LIBBY: I believe these statements are perfectly compatible. The storage at Mica gives us virtually 90 per cent control of the river. All that the Arrow site will accomplish is the re-regulation of these flows to suit the border requirements, and that is its basic purpose.

Mr. HERRIDGE: Do you state that the Mica site provides 90 per cent of the regulation of the river?

Mr. LIBBY: Yes, I believe that is the approximate figure. The total scheme there provides 90 per cent of that regulation; that is at Mica.

Mr. HERRIDGE: On page 4 of your submission you state:

Beginning in 1961, extensive field investigations have been conducted to prove competency of the dam foundations—

On what date did these field investigations commence in respect of foundations and costs?

Mr. LIBBY: This commenced in the summer of 1961.

Mr. HERRIDGE: They commenced then after the treaty was signed?

Mr. LIBBY: The intensive investigations commenced after the signing of the treaty, yes. As I mentioned earlier in this brief, this site had been explored in almost more detail than any other site in the area.

Mr. HERRIDGE: It is obvious that the treaty was signed before all the facts were known in respect of these dam sites?

Mr. LIBBY: I would say that the drilling that was done gave a good indication of feasibility.

Mr. HERRIDGE: I understand that is the case in respect of the Mica site.

Mr. LIBBY: Yes.

Mr. HERRIDGE: I should like to ask two further questions regarding costs in relation to the Mica creek dam. On whose figures did you base your flowage costs of the total cost of construction?

Mr. LIBBY: We submitted our cost estimates for the structures to the British Columbia Hydro and Power Authority. We did not estimate flowage costs.

Mr. HERRIDGE: The flowage cost figures are figures supplied by the British Columbia Hydro Authority; is that right?

Mr. LIBBY: That is correct.

Mr. HERRIDGE: In the last paragraph of your submission there is reference to the safety of the dam at Mica, which is paramount, and you say the dam is designed to be stable under earthquake loads. Would you mind explaining what difference there is in dam design considering the possibility of earthquake loads?

Mr. LIBBY: This contemplated dam is a major high dam. Earthquake loads create a dynamic effect.

Mr. HERRIDGE: Excuse me, I did not hear you.

Mr. BYRNE: The effect is like Mr. Herridge's personality.

Mr. HERRIDGE: What is that?

Mr. BYRNE: The effect is like your personality.

The CHAIRMAN: Mr. Byrne, order.

Mr. HERRIDGE: I should like you to explain the engineering aspects of this consideration.

Mr. LIBBY: I will attempt to explain it to you.

When an earthquake shock moves through a site it creates both vertical and lateral oscillations. In other words, you have a movement of the ground. If the dam is not in an earthquake zone, and this is usually considered only for smaller structures, what we call lateral acceleration in the structure is not applied. However, in an earthquake design lateral oscillations cause forces which are proportional to the mass of the dam. When you consider an earthquake load on a dam you apply forces in the same directions to compensate for these accelerations. This usually results in what I would say are flatter slopes in the case of an earth filled dam. There is no concern in respect of the failure of the structure in any way.

Mr. HERRIDGE: During the recent earthquake, vessels on the Arrow lakes were rocked considerably as a result of wave action. Do you consider this area an earthquake zone?

Mr. LIBBY: We must always consider the possibility of an earthquake when building structures of this size. We do not have record of a large number of observations in this particular area but we have considered all the known data available in the surrounding areas in an attempt to locate the epicentres of these various earthquakes and the magnitudes involved. We know these are sparse and there could be larger shocks than measured. This problem of earthquake loading has, as I said before, received very careful attention and the slopes of the dam are designed to provide that safety.

Mr. PUGH: What earthquake shock force in engineering terms is this dam designed to withstand? I ask this question because I am interested in protecting Mr. Herridge's homestead.

Mr. HERRIDGE: What was that statement?

Mr. LIBBY: We are very interested in this aspect also, of course.

There are a number of factors to be considered in this regard. We have made tests which show that the slopes of this fill can stand lateral acceleration of close to what we call the gravity force equal to the full mass of the dam. Normally earthquake structures are considered safe for lateral accelerations of one tenth of the mass of the dam. The dam structure in this case is considered safe in this regard.

Mr. HERRIDGE: Whose homestead did Mr. Pugh say he was trying to protect?

The CHAIRMAN: Mr. Pugh is concerned about your homestead.

Mr. HERRIDGE: I have no homestead affected by this dam.

Mr. CHATTERTON: Will you define flowage costs for me, please?

Mr. LIBBY: My understanding of flowage costs is that those costs are associated with the flooding of the reservoir lands. In other words, they would be indemnity for railroad and road re-locations, clearing costs, land purchase costs, and any indemnity of this kind.

Mr. CHATTERTON: I understood you to say that your responsibility did not include flowage costs.

Mr. LIBBY: That is correct.

Mr. CHATTERTON: What is the vertical drop in the level of the water in the Mica reservoir, say, from January to the end of September?

Mr. LIBBY: The annual fluctuation in the average cycles of the Mica operation, I am informed, is about 100 feet with a maximum of 155 feet.

Mr. CHATTERTON: I was thinking of the summer months in which the area would be used for recreational purposes, from June until September. Is it fairly stable during that period?

Mr. LIBBY: During this period the reservoir will be sustained usually at the higher levels, and it will only be during the winter months that most of the average annual storage will be evacuated. Of course, during the so called critical period there will be a lower lake level.

Mr. WILLOUGHBY: Mr. Chairman, I recognize that this brief is mostly concerned with Mica; however Arrow has been mentioned and we are going to have other witnesses on the Arrow later. In view of the fact that such emphasis is placed on the bedrock foundation for Mica and we have been led to understand that they have not found such conditions in the Arrow, would you care to express an opinion as an engineer on the possibility of earthquake damage on the proposed Arrow?

Mr. LIBBY: I would say that I am not qualified to comment on the Arrow design because I am not acquainted with the later work.

Mr. WILLOUGHBY: I have one other question in regard to recreational facilities. Can you tell me how close Mica lake, which has a 135 mile lake line, will be to the North Thompson and Yellowhead highway?

Mr. LIBBY: I think it is around 28 to 30 miles.

Mr. WILLOUGHBY: It has great recreational possibilities.

Mr. RYAN: May we take it that the safety factor of 2.2 times the maximum recorded flow will be quite adequate to take care of any foreseeable snow or land slides into the reservoir?

Mr. LIBBY: Yes.

Mr. PUGH: I take it that in 1961, when you came in, you started in just as though this whole project was going to go ahead. In other words, the work you were doing was work in depth.

Mr. LIBBY: Our first assignment in the field was to confirm the fact that Mica was the proper storage reservoir. This involved looking at alternative sites, with some drilling.

Mr. PUGH: At the time you came in, the treaty had been signed, I understand.

Mr. LIBBY: Yes.

Mr. PUGH: And as far as you were concerned it was a question of carrying out the terms of that treaty.

Mr. LIBBY: That is the basis for the study that we made.

Mr. PUGH: In other words, you knew you had to provide certain controls for downstream, the run-off and the flooding, and so on.

Mr. LIBBY: Yes.

Mr. PUGH: I have a question on this increase in height in Mica. Did you say any other dams might have to be put in upstream for power or otherwise?

Mr. LIBBY: We found, within the scope of these studies for those conditions, that it was beneficial to raise Mica to this water surface level of 2475, and this we found was the optimum manner to develop the upper stretch of the river and by raising it from a considerable lower level it obviated the need for a dam at, say, Calamity.

Mr. PUGH: Your studies, as indicated in the report here, were mainly directed to the situation and the type of dam in Mica, but I would take it that at that time a decision had been reached that High Arrow was to be a method of control in conjunction with Mica.

Mr. LIBBY: Our studies confirmed that High Arrow was necessary for regulation.

Mr. PUGH: It has been suggested by a number of experts that Mica alone could do the trick, and that High Arrow was not necessary. Is that a good thought in the engineering line?

Mr. LIBBY: We did not find this possible.

Mr. PUGH: I should like to speak now to the question of access. Mica being right up near the big bend up there, have you studies as to how you get in and out with materials and all the rest?

Mr. LIBBY: Alternate routes were considered for access.

Mr. PUGH: I was interested in Dr. Willoughby's idea of a cut-off from the Yellowhead pass route.

Mr. BYRNE: It is hypothetical.

Mr. PUGH: Is it hypothetical?

Mr. LIBBY: No, it certainly was considered.

Mr. PUGH: Anyway from the road you are pretty well bound by Revelstoke north or Golden north.

Mr. LIBBY: Yes, but we also investigated access from this location that was mentioned earlier.

Mr. PUGH: Has the British Columbia government anything to offer regarding access? I have been over that big bend road and it is not a pleasure trip which you would want to take.

Mr. LIBBY: No, I understand a considerable amount of improvement is contemplated.

Mr. PUGH: They would have to re-route that road if the dam were built near Revelstoke.

Mr. LIBBY: It depends on the timing and the economy.

Mr. PUGH: It seems to me that this dam will be a tremendous tourist draw.

Mr. LIBBY: They usually are.

Mr. PUGH: One thing I would suggest is greater mosquito control up there.

Mr. WILLOUGHBY: I have a supplementary question. Can you give me the reasons why the access from North Thompson was given up in favour of the longer haul from Revelstoke?

Mr. LIBBY: Any route that comes in from the upstream side of the dam usually has a severe penalty to overcome, and this was the case on this route, as I recall. If you could build it in the bottom of the reservoir it would be quite a logical access, but when you start to impound you will be flooded and that forces you to locate on the high level. In this case this appeared very expensive.

Mr. KINDT: When you were employed to do this consulting work you were requested to consider power. I take it from your answer to Mr. Herridge that you did not deal with the intangible benefits or any of the other factors in the watershed development. Were you not asked to do so?

Mr. LIBBY: That is right.

Mr. KINDT: In other words, you were dealing with a segment of the watershed, or else part of the purpose of the watershed development, which is power. You were therefore dealing with a particular phase.

Mr. LIBBY: This was the basis for our studies.

Mr. KINDT: If you turn to page three and read there it says, "for the economical development of the power resources of the Columbia basin". In other words, the treaty was signed and you were working within the framework of the treaty and you were dealing with one particular phase. You say in the next sentence "its terms are not merely fair but definitely advantageous, both to the province of British Columbia and to Canada as a whole". You slipped in your reasoning there from the particular to the general. In other words, you give your benediction for the treaty in all of its phases, both the intangible benefits and everything else, on the basis of what you find in power. Do you think that as a consulting firm you have a right to go from the particular to the general and make sweeping statements?

Mr. LIBBY: I believe we prefaced this brief by giving the terms, and I think that it is in this context that this should be kept. In other words, this thought should be kept within the terms of the treaty and under the severe assumption of independent operation in the Columbia.

Mr. KINDT: In other words, you are hemmed in from all sides. My point is this: You were hemmed in from all sides in your terms of reference. You were dealing with one specific phase, which was power, yet you have gone from the particular to the general in your statement appearing on page three, and you have given an opinion on the treaty. We are trying to decide whether or not this treaty is good from the point of view of the people of Canada, while you have said here it is a good treaty, moving from your particular study of Mica to the whole broad treaty. That is why I say that you are beyond your terms of reference in doing your consulting work.

Mr. LIBBY: I cannot entirely agree with you, sir.

Mr. KINDT: I suppose you would not, so go ahead and defend it.

Mr. LIBBY: I do not believe this thought can be taken out of context from the statement of the study. It is not intended to be so.

Mr. KINDT: You left the power study and got into the whole treaty—speaking of its effect upon Canada and made the statement that its terms were not merely fair but definitely advantageous to both the province of British Columbia and Canada as a whole. If I were convinced of that and if other members of the committee were convinced of that we could button up this treaty and report to parliament, and we would be done with it. What we are trying to get at is a critical analysis. There is just too much emphasis on power, and we have a switch here from the particular to the general, without taking any of these intangible benefits or any of the other interrelationships in a complicated matter such as a watershed into consideration. This is salesmanship. What we want is a critical analysis.

Mr. LEBOE: I would just like to say, in connection with this, surely we should accept a certain amount of study by reputable firms in other fields. Just because the witness is working within a particular field and in his statement accepts the recommendation of other competent people does not mean that the witness, in producing this document, has gone astray or gone into a broad field at all. Let us say I take a road map and I say that I will go from here to here. I then accept the fact that engineers have built the road and that I can travel on it.

The CHAIRMAN: I do not want to invite debate. We have Dr. R. L. Hearn and Dr. Hugh Q. Golder scheduled to follow Mr. Libby. On the other hand, I do not want to cut off anyone.

Mr. DEACHMAN: Can I ask a supplementary question relating to what Dr. Kindt has just said? I wonder, sir, whether dams provide a tourist attraction? I think it has been discussed here. This is a sort of intangible accretion on the building of a dam. Are you familiar with the development of the shores of damsites as attractive parkland? Are there examples of this in the neighbourhood?

Mr. LIBBY: It is obvious that a lake body in this location would have a very great attraction.

Mr. DEACHMAN: Have you examples of this in the lower Columbia?

Mr. LIBBY: Most lakes which have reasonable access are attractive to tourists.

Mr. DEACHMAN: It is reasonable to expect this damsites will bring in intangible benefits offsetting any intangibles which may exist in the area now.

Mr. LIBBY: You certainly have to weigh the pros and cons.

Mr. KINDT: That would apply just to Mica, not to the watershed as a whole?

Mr. LIBBY: No.

Mr. DEACHMAN: I think the witness said that any body of water develops its intangible benefits along its edges, and the dam is itself an attractive intangible benefit.

Mr. KINDT: That is 100 per cent wrong.

The CHAIRMAN: Mr. Kindt, I do hope we can avoid discussions.

Mr. BYRNE: I would say first that having regard to paragraphs 2, 3, 4 and 5 of Mr. Libby's submission, they have made a fairly thorough study of the treaty provisions which would justify a statement that this was a good treaty for British Columbia and Canada. However, I am very interested in this question of the supply, Golden of course being in my territory. When I said it was a hypothetical highway, I was asserting that I believe the so-called Yellowhead pass highway is still not an established highway. However, do I understand you to say that most of the material would be moving in from Revelstoke or from the lower side of the dam, or is it not possible that a large measure would be trucked in from the Golden approach?

Mr. LIBBY: Some could come in through Golden. This would depend on the contract.

Mr. HERRIDGE: I have a supplementary question. I have here a verbatim report of the city council of Revelstoke of February 20, 1964. It is a report of the discussion of the council of Revelstoke and Dr. Keenleyside.

The CHAIRMAN: We are not going to introduce evidence, are we? This is only by way of a question.

Mr. HERRIDGE: Yes. Dr. Keenleyside is quoted as saying, "What will happen is that the Libby townsite—that is Mica—established down there will be drawing in all its supplies either from or through Revelstoke, and this will bring other people into Revelstoke".

So that it appears that it is going to be a main centre of distribution, Mr. Libby; is that correct?

Mr. LIBBY: I think that perhaps it will be, yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Libby, my question deals with a matter which Dr. Keenleyside brought up, but with a slightly different aspect of it. I am interested in your use of the words fair and advantageous to the province of British Columbia and to Canada as a whole. I want to know on what you base your use of the words "fair and advantageous"? Do you use them in a very limited sense, or are you considering it to be fair for the general advantage of Canada as a confederation?

Mr. LIBBY: I am considering it from the standpoint of the Columbia basin within the terms of reference for power purposes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You are considering it in respect of power purposes and no more. I presume you are aware that there are a number of misgivings being expressed nowadays by people competent to have opinions, such as constitutional lawyers, about precedents being set in this treaty in regard to the relationship between the province and the central government. I wonder when you use the terms "fair and advantageous" in this rather general way if, in the light of these misgivings, it would not be a little bit dangerous, especially since you have specifically put in there a reference to power?

Mr. LIBBY: Well, I am an engineer not a legal expert.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Fair is not exactly an engineering term is it?

Mr. LIBBY: Well, within the sense of the power study, I think it is a reasonable word.

The CHAIRMAN: Gentlemen, are we prepared to ask Dr. Hearn and Dr. Golder to come to the witness stand?

Agreed.

Thank you for your kind co-operation.

The witnesses retired.

Gentlemen, Mr. Hearn has quite modestly handed me only a list of occupations which he has jotted down, within past years in his capacity as a consulting engineer. He holds the degree of Bachelor of Applied Science, Doctor of Engineering, Doctor of Laws, and he is a professional engineer of the province of Ontario as well as the province of British Columbia.

He has been president of C.B.A. Engineering Limited from 1960 to date, and a consulting engineer from 1957 to 1960. He has been chairman of Ontario Hydro from 1955 to 1956, general manager and chief engineer of Ontario Hydro from 1947 to 1955; chief engineer of design and construction, 1945 to 1947; chief engineer of Polymer Corporation, 1942 to 1944; chief engineer of Dominion Construction Company, 1934 to 1942; chief engineer of H. G. Acres, consulting engineers, from 1925 to 1934; assistant chief engineer, Washington Power Company, from 1922 to 1925; and design engineer of Ontario Hydro from 1913 to 1922. He has prepared a paper entitled "Columbia River Development Arrow Dam Project".

Accompanying Dr. Hearn we have Dr. Golder whom I introduced before. Dr. Golder holds the degree of Doctor of Engineering, M.I.C.E., M.E.I.C., M.A.S.C.E., and is a professional engineer of the provinces of Ontario, British Columbia, and Prince Edward Island.

In 1958 Dr. Golder resigned to form his own consulting practice in civil engineering, specializing in the fields of soil mechanics, foundations, earthworks and geotechnical processes. In the same year he was invited by Harvard University to give a course of lectures on engineering geology which he gave in the spring and summer of 1959.

Dr. Golder has with him A. J. Ring who is project manager of C.B.A. Engineering Limited. These three witnesses are available to the committee to answer any questions you may have in connection with the submission of the British Columbia Hydro and Power Authority in respect of the Arrow dam project.

I now give you Dr. Hearn.

Dr. RICHARD L. HEARN (*President of C.B.A. Engineering Limited, Vancouver, British Columbia*): Mr. Chairman and gentlemen, I propose to submit this brief for the purpose of outlining what C.B.A. engineering has undertaken in connection with the Arrow dam project. The brief reads as follows:

In the latter part of 1960, the British Columbia Hydro and Power Authority engaged C.B.A. Engineering Limited as consulting engineers for the Arrow dam project. C.B.A. engineering reviewed the preliminary engineering reports made prior to 1960, and as a result of this review, C.B.A. engineering satisfied themselves that the dam was feasible and that the dam could be built in the general area of the Castlegar narrows.

The purpose of the Arrow dam is two-fold—

- (1) To impound water during the spring freshet, thus reducing the flooding problems downstream from the Arrow dam;
- (2) It would regulate the release of storage water behind the Arrow dam, thus increasing power production downstream.

C.B.A.'s initial task was to select a suitable site. Feasibility studies and field exploration work were carried out on several sites in the Castlegar area. As a result of these studies, the site chosen was a site known as "section 8", approximately five miles upstream from the town of Castlegar. At the same time, hydraulic studies were carried on in co-operation with the British Columbia Hydro and Power Authority to determine the discharge capacity of the dam and to settle the main dimensions and general details of the dam structures that would provide the required amount of live storage. Section 8 having been selected as the most economical and desirable site, further detailed sub-surface exploration was carried out and at the same time, a careful search was made to locate and define suitable materials from which the dam could be constructed.

As this information became available, a design was evolved which allowed construction of a large part of the earth dam to be done in the wet, and also achieve a solution to the problem of cofferdamming the area where the spillway structure and lock were to be built.

Throughout the design period, navigation had to be considered along with other hydraulic problems.

To assist in the design of the dam, a large hydraulic model was constructed in the Ontario hydro laboratory (located outside of Toronto) and the necessary model tests were carried out during a two-year period.

The Arrow dam project is divided into three main structures—

- 1—A concrete section containing the discharge works on the left bank of the river;
- 2—A navigation lock located between the discharge works and the earth section of the dam;
- 3—The earth dam spanning the present river and reaching from the navigation lock to the right bank.

The concrete portion consists of a bulkhead section starting from the left bank, extending to the discharge works which consist of four large sluices 50 feet wide and eight low-level ports. Downstream of the discharge works is an energy dissipating system and a rock groyne protecting the navigation channel.

The lock is designed to handle the navigation in the river which consists primarily of log bundles passing downstream to the pulpmill and sawmill some two miles below the dam. The lock will handle present traffic and traffic contemplated in the future. Provision can also be made for the passage of small craft around the dam if required.

The earth dam, because of the deep sand and gravel beds which lie beneath it, will rely on a relatively impervious blanket on its upstream face extending some one half mile upstream from the dam. The slopes of the dam, because of the method of construction, had to be selected more conservatively than one would normally do if one were designing the slopes for stability only.

The sequence of construction consists of:

- (a) Cofferdamming the area of the concrete works on the left bank of the river;
- (b) Constructing the concrete works within the cofferdam in the dry;
- (c) Digging the upstream and downstream channels leading to and from the discharge works;
- (d) Diverting the river through the discharge works by means of a diversion dam in the present river channel;
- (e) Completing the main dam which incorporates the diversion dam; and
- (f) Blanketing the upstream face of the dam and the bed of the river.

While the above points are listed as a sequence, it must be realized that they will be in part concurrent and overlapping.

The main quantities involved in the construction of the Arrow dam project are as follows:

Concrete—over half a million cubic yards.

Earth fill for the dam and blanketing the upstream face of the dam and river—7.4 million cubic yards.

Material of suitable quality and in adequate quantities for the construction of the Arrow dam has been found within a reasonable distance of the dam.

Excellent rock foundation was located on the left bank of the river on which to construct the concrete section of the works; that is, the discharge structure and navigation lock.

A number of ancillary problems have had to be solved in connection with the design of the project, such as the protection of the water supply for people who will be affected by the construction work, and the relocation of the Canadian Pacific Railroad Kettle Valley line in the vicinity of the dam.

The rehabilitation work caused by the construction of the dam and the flooding of the reservoir area is being handled by the British Columbia Hydro and Power Authority.

The C.B.A. engineering staff has been supported throughout the investigation and the design of the project by the following outstanding consulting engineers:

Dr. Otto Holden, who was chief engineer of the Ontario Hydro prior to his retirement in 1960. Dr. Holden has had 50 years experience in projects of this type in design and construction.

Mr. Gordon Mitchell, who was project manager on the Sir Adam Beck No. 2 development and director of construction on the St. Lawrence power project prior to his retirement in 1959 from the Ontario Hydro. Mr. Mitchell has had 50 years experience in construction work involving projects of this type.

Dr. H. Q. Golder, internationally known specialist on soil mechanics, is supervising the design of the earth works, and associated with him is Dr. Arthur Casagrande, who I would say is the world's foremost soils engineer.

The CHAIRMAN: Mr. Davis.

Mr. DAVIS: Mr. Chairman, I only have one or two questions. First of all, with regard to the estimated capital cost of the civil works, are you confident, Dr. Hearn, that the High Arrow dam can be constructed within the cost estimates we now have?

Mr. HEARN: You must remember that the cost figures we prepared were for the parts of the structure for which we were responsible, and I am confident they can be.

Mr. DAVIS: What are those parts of the structure?

Mr. HEARN: It would be the concrete part, the outlet, the lock and the main dam itself. The changing of the highways, the railroads, and the Castlegar water supply, and these other things, were handled directly by the authority.

Mr. DAVIS: But, within this large percentage of the total cost of the project, which has come under your scrutiny, you are reasonably confident that these works can be put in for the estimate we now have officially in the public document?

Mr. HEARN: On the estimates for which we have authority, yes.

Mr. HERRIDGE: Would you give the committee the figure of the estimates you made for the construction of the dam and doing the work you mentioned?

Mr. HEARN: I do not have them.

Mr. HERRIDGE: You are not able to give them to the committee at this time?

Mr. HEARN: No, I am not; I am sorry.

Mr. DAVIS: My second question arises out of the fact that in item 11 of the protocol, itemized on page 114 of the white paper, there is a bonus to Canada for early completion of the storages, and this would apply to the High Arrow project as well. Are you confident that the High Arrow project can be completed by April 1, 1969, assuming ratification this year?

Mr. HEARN: Yes, assuming that, we are confident. With the construction schedule which we have set up, and knowing the type of work, we are confident we can have it ready to meet the flood of that period.

Mr. DAVIS: There is a possibility that the British Columbia Hydro and Power Authority might pick up some additional revenue due to completion a few months in advance.

Mr. HEARN: I would not say that. All I can say is that according to the construction schedule which we have prepared and which has been given to the authorities we are confident we can do the job as it is designed in that time and have it ready.

Mr. DAVIS: This is not an exceptionally tight schedule?

Mr. HEARN: No.

Mr. DAVIS: It is the opposite?

Mr. HEARN: No; it is not the opposite. It is a normal one, with sufficient provision for contingencies as we call them. There is provision in there that if there is something, we can adjust the thing and there is ample time to take care of those.

Mr. DAVIS: In respect of the safety of the structure itself, references have been made by previous witnesses, as well as yourself, to the nature of the foundation materials, fill, gravel and so on. Have big dams been built under similar circumstances elsewhere, and are they safe?

Mr. HEARN: I think I would like Dr. Golder to go into that in detail. So far as my opinion and that of C.B.A. Engineering Limited is concerned, we are confident not only that the dam is safe but that it is conservatively safe on account of the methods of construction we are using. I mentioned that in the presentation. You will find the slopes more conservative than normally. Due to the actual stability of the dam it could have steeper slopes, but because of the method of construction we have to make them flatter, and that is safer. I think Dr. Golder will be able to bring that out. He has had control of the dam design supervision for C.B.A.

The CHAIRMAN: Mr. Golder, would you care to make a statement at this time?

Dr. HUGH Q. GOLDER (*Dr. Hugh Q. Golder and Associates Limited, Consulting Civil Engineers, Toronto Ontario*): Gentlemen, the design of this dam is of great interest from an engineering point of view.

The dam has two functions. It must present a relatively impervious barrier to water and then it must also sustain the water pressure. In some dams, such as a concrete one, the one section does both functions.

In an earth dam such as we have designed at this site we have a comparably thin impervious membrane made of glacial till, which is supported by shoulders of sand and gravel. The reasons a dam can be built safely and satisfactorily at this site are as follows.

Firstly, we have a large outcrop of rock on which the discharge works can be placed. That is essential because the discharge in time of flood is very heavy.

Secondly, the head across this dam—that is, the difference in water level upstream and downstream—is small. This is called High Arrow dam to distinguish it from a previous lower dam which had been studied at this section of the river. But, in fact, it is not a high dam; seventy-seven feet is quite a low head.

Thirdly, we have very good foundation material in the form of compact sand and gravel on which to place the dam.

Fourthly, the amount of seepage loss—that is, the amount of water which may flow under the dam—is unimportant because at all times 5,000 or more cubic feet per second of water will be flowing down the river. So, the seepage loss of 100 or 200 cubic feet per second does not matter.

Finally, we have extremely good building materials available in the area, namely the glacial till, which is a soil formed under glacial conditions and which consists of all particle sizes from boulders down to clay sized particles, and that is the material which will be used to form the impervious barrier. And, there is an adequate amount of sand and gravel to form the shells of the dam.

Now, it is not necessary that the material under the dam should prevent all water flowing. In some dams, the cut-off is taken down to rock or to an impervious layer and water is cut off. That is not necessary if, as I have said, a certain amount of water must always flow down the valley, as is the case here.

At the site in the narrows the depth to rock in the middle of the valley is deep; we do not know how deep it is but it is over 500 feet. We have drilled that distance down and have not found rock. So, at this site we do not propose to try to form a cut-off. It is possible to control the amount of water which flows under the dam in a safe manner. We will control that by placing a blanket of impervious material upstream of the dam. This will reduce the amount of the seepage at which water percolates under the dam. This is what we call a seepage problem, and it is not new or unique. Many dams have been built in which water is allowed to percolate under the structure. The only problem is to control the velocity and the amount.

Because we have a seepage problem and because we are going to put a blanket upstream of the dam the slopes of the dam itself can and will be very flat, so we do not have a stability problem in the normal manner of an earth dam. If you have an earth dam where you are not concerned with a seepage problem you naturally will make the slopes as steep as you can because you are saving material and thereby reducing costs. In our case, the slopes have to be flat because of the seepage problem, as a result of which we do not have a stability problem. Any analysis of stability shows quite clearly that we have a factor of safety against slip in the dam itself which is more than adequate.

The earthquake has been considered but because of this same factor of no stability problem we again have no problem here from the point of view of earthquakes.

We will know during construction how successful we are with this blanket of glacial till. We will have measuring points under the blanket and in the blanket. The blanket will continue down to the dam and will be formed up on the upstream surface of the dam and up the sides of the river valley, thus making a sort of a basin of impervious material.

In respect to this dam, both in the blanket and in the core of the dam itself, we will have measuring points to show us what the water pressure is in the dam and below it, and from these we can readily assess the effect of the blanket.

The blanket will be long; from the downstream toe of the dam to the upstream end of the blanket will be about 2,600 feet. This is very conservative.

It gives us a ratio of length of blanket to head of 3 per cent. Many dams have been built with a ratio of 10 per cent, and 5 per cent is considered conservative. In this case we are going to 3 per cent, and that is not a waste of money. The reason is that in the sands and gravels of the Columbia valley you can occasionally find what are called open work gravels and, in these gravels, you just have gravel with no sand, as a result of which, of course, they are very pervious. This occurs generally across the river and can be 100 or 200 feet in length. When water flows through them of course there is no loss in head because of the high permeability. We will know by the measuring points I have described whether or not we have material of this type under the blanket. And, if we are not getting the control which we expect the answer is very simple; we simply have to extend the blanket further upstream. Now, because of the possibility of open work gravel occurring it would be very difficult, if not impossible to de-water the centre of the river in order to construct the dam. Therefore, we propose to construct that portion of the dam which is below about level 1370, which is low water level in the river, by placing the material through water.

This can be done and has been done before. At the Dalles dam on the Columbia itself the blanket was placed by putting the material into water. The construction of the dam is described very briefly in the note that you have. The flow of the water will be diverted through the completed concrete discharge section by building a diversion dam across the river which will be of sand and gravel. This will form the toe of the main dam. We will then place the till blanket upstream of this in relatively still water where the flow will not exceed perhaps two or three feet per second. Then we will place the upstream shoulder of the dam to support the till. The method is very simple and the principal is perfectly safe. This is accepted practice. The combination of the proposed long till blanket and building the whole of the lower portion of the dam under water is a little unusual.

There is no question that the dam at this site built by these methods is feasible and will be perfectly safe because, and I will reiterate the reasons, the head is low—in the neighbourhood of 77 feet—and the foundation is of sand and gravel, which is good. The amount of seepage is unimportant. I should say the calculation in respect of the amount of seepage under the dam indicates it is in the neighbourhood of 100 to 300 cubic feet per second and, as I said, at least 5,000 cubic feet per second must always flow down the river. We also have, and this is very important in any earth dam, extremely good materials available at or near the site in adequate quantities.

Mr. DAVIS: Mr. Golder, you tended to dismiss the consequences of an earthquake. Is this because it is an earth and rock filled dam?

Mr. GOLDER: I did not intend to imply that I dismissed this possibility. We have, of course, studied this situation. I said that because we do not have a stability problem here the earthquake problem is not important.

Mr. DAVIS: Is the material shaken down and consolidated as a result of an earthquake?

Mr. GOLDER: The effect of an earthquake on an earth dam is generally to flatten the slopes slightly. I do not think there is any recorded case of the failure of an earth dam owing to an earthquake, although several have been shaken. Our stability factor here is so considerable that we know an earthquake will not be dangerous.

Mr. DAVIS: Some of the dams which have failed and received great publicity have been dams constructed of a thin shell of concrete; is that right?

Mr. GOLDER: Yes.

Mr. DAVIS: This type of construction definitely is not the type to be used in the case of the High Arrow project?

Mr. GOLDER: The High Arrow dam will not be a concrete dam.

The CHAIRMAN: Gentlemen, on my list of individuals wishing to question the witnesses I have the names of Mr. Stewart, Mr. Herridge and Mr. Kindt in that order.

Mr. STEWART: Mr. Chairman, the questions I intended to ask concerned the safety of this structure. General McNaughton made an attempt to arouse doubt in our minds in this regard. My doubts have now been quelled and I do not need to ask questions.

Mr. HERRIDGE: Mr. Chairman, I should like to return to the consideration of a question I asked earlier regarding the total cost of the High Arrow dam, which is estimated at something over \$129 million. I am unable to understand why the witness is unable to inform the members of this committee the estimated cost of the actual construction of the dam. Does this witness not know that estimated cost because he is unaware of his firm's estimate in this respect.

Mr. HEARN: Our firm's estimate is not the complete estimate. We gave this figure to the authorities and they have other factors which must be added to it. Our estimate covered the cost of construction and materials but there are other factors which must be taken into consideration. We do not have those figures. I cannot give you a figure which would mean anything to you. I am not trying to be difficult.

Mr. HERRIDGE: Can you give us your estimate of this cost?

Mr. HEARN: No, I cannot give you that figure because I have not got it.

Mr. HERRIDGE: Mr. Chairman, I think this is an unusual situation. We were unable to get the flowage figures from one of the provincial government witnesses and now we are unable to get this estimated cost from this witness.

On page 2 of your brief you have stated:

The lock will handle present traffic and traffic contemplated in the future. Provision can also be made for the passage of small craft around the dam if required.

This statement indicates that some traffic is going to go through the lock but arrangements will be made to take other traffic around the lock; is that right?

Mr. HEARN: The traffic to be taken around the dam will comprise small boats. It is uneconomical to put small crafts such as motorboats through a lock of this size. These boats will be picked up, put on trucks and driven around the dam.

Mr. HERRIDGE: What will happen in respect of the larger vessels?

Mr. HEARN: The designed dimensions of the lock were not decided by the C.B.A. but by the authorities.

Mr. HERRIDGE: Are we to understand that tugboats and larger vessels will be able to pass through this lock?

Mr. HEARN: That is what we contemplate.

Mr. HERRIDGE: On page 3 of your brief you state:

A number of ancillary problems have had to be solved in connection with the design of the project, such as the protection of the water supply for people who will be affected by the construction work,—

Would you inform the members of this committee what is being done to protect the water supply of communities below the dam such as Castlegar and Kinnaird?

Mr. HEARN: A careful study is being made of the condition of the water as it now exists. There is no doubt that if and when during construction the

water is polluted to an extent which is deemed unsafe this will be corrected. We are now making a study of the conditions of the water at the present time and everything will be done to maintain this condition throughout the construction. However, as you are well aware, during the removal of material of this type a certain amount of silt will seep into the river. Obviously communities such as Castlegar must have pure water and provision will be made to ensure a continuous supply of pure water.

Mr. HERRIDGE: Will provision be made to ensure a continuous supply of pure water for the village of Kinnaird?

Mr. HEARN: My understanding from the authorities is that they will take care of this situation. All we have been doing is making a study of the conditions.

Mr. KINDT: Mr. Chairman, I should like to ask two questions. As a result of the pressure of water upstream is there any danger of the dam wearing down, or is the anticipated seepage sufficient to avoid this difficulty?

Mr. GOLDER: We must make sure that what you are suggesting does not happen. That is the reason we will have these measuring points indicating the pressure drop under the blanket. The worst condition possible occurs when you first fill the reservoir. At that time we will be watching the water level very carefully. The tendency will be for the blanket to extend itself by a small amount of silt. However, there is not much silt in this area because of local conditions. A small amount of silt will be brought in by the small creeks and streams. The tendency will be for the situation to improve rather than to worsen.

Mr. KINDT: On page 2 Dr. Hearn states that the purpose of the High Arrow dam is twofold. It is for flood control, which would be downstream as he has mentioned here, and downstream power.

If the project had been completed in a slightly different fashion, it would be possible—if it were a straight Canadian development—to construct this dam with turbines and to generate power. Is that true?

Mr. HEARN: Do you mean at this site?

Mr. KINDT: Is that true, Dr. Golder?

Mr. GOLDER: That is not my question.

Mr. KINDT: It is for either one of you. In other words, it could be made a power dam and another purpose added there?

Mr. HEARN: You mean Arrow lake?

Mr. KINDT: Yes.

Mr. HEARN: That was studied and it was found that the cost of developing power there was very uneconomical; it was not therefore provided in the design. It was studied carefully.

Mr. KINDT: It costs \$129 million as it stands now. Was this development studied in the initial stages?

Mr. HEARN: Yes. You see, what happens at Arrow that does not happen at Mica is that the storage is pulled down and one starts off with 77 feet; but before the season is over there are not even 10 feet, because all the storage is being pulled out. For that reason it is uneconomic.

Mr. KINDT: In other words, High Arrow was conceived by the United States army engineers to control downstream water for power purposes and flood control?

Mr. HEARN: Yes.

Mr. KINDT: In other words, the primary purpose of it is to satisfy the over-all plan for these downstream purposes by virtue of the fact, as you have said, that when the freshets come in the spring the dam will—

The CHAIRMAN: Mr. Kindt, the witness has made two attempts to answer what appeared to be questions, but this is now a statement.

Mr. KINDT: I am looking after this. Just keep quiet, Mr. Chairman, and we will get the facts.

The CHAIRMAN: Just a minute, Mr. Kindt; I am chairing this meeting and—

Mr. KINDT: I am coming to a question. If you will just sit down and keep quiet I will be able to pose my question.

Mr. BYRNE: On a point of order, Mr. Chairman—

Mr. RYAN: On a point of order, Mr. Chairman, this amounts to contempt and Dr. Kindt should be asked to retract his remarks.

The CHAIRMAN: Mr. Kindt, I do not care much about myself; I do not hold myself in particularly high esteem. However, I do hold the committee and the position of the Chair, as instruments of parliament, in extremely high esteem.

Will you pose your question. The witness has tried to reply on two occasions.

Mr. RYAN: I think Mr. Kindt should apologize to the Chair.

The CHAIRMAN: That is unnecessary.

Mr. KINDT: Maybe what we need is a new Chair. This High Arrow project is set forward with two purposes.

Mr. HEARN: We could have added a third one, which was in our mind: It also helps in the regulation of Mica creek. I will add that third one to it now. It does help the regulation of Mica creek; it does benefit it, too.

Mr. STEWART: May I ask a supplementary question?

The CHAIRMAN: Mr. Stewart.

Mr. STEWART: Will the High Arrow project not permit the use at Murphy creek of 42 feet of water stored in the High Arrow lakes system for power generation at Murphy creek when that structure is put in?

Mr. HEARN: Murphy creek?

Mr. STEWART: Murphy creek is downstream from High Arrow.

Mr. MACDONALD: It is just above Trail on the main stream.

Mr. HEARN: If I have the right thing, yes, it would help. However, C.B.A. has not been given that. It has not been studied by C.B.A., but in our opinion it could help, yes.

The CHAIRMAN: Does that answer your question, Mr. Stewart?

Mr. STEWART: The question is not answered, but I realize the witness does not have the technical information to answer the question.

The CHAIRMAN: Mr. Kindt.

Mr. KINDT: It has been said by other witnesses, Dr. Hearn, that High Arrow is of no value to Canada. Do you agree with that or do you disagree?

Mr. HEARN: We were asked to design High Arrow dam and prepare plans and specifications. The other things were not put to C.B.A. and I am in no position to answer your question because I am representing C.B.A. That was not part of my assignment.

Mr. MACDONALD: I want to revert to the question asked by Mr. Herridge, and I will put it in a series of questions.

You gave to the British Columbia Hydro and Power Authority a quite precise estimate for the work for which you are responsible?

Mr. HEARN: We gave them all that information.

Mr. MACDONALD: You gave them all that information?

Mr. HEARN: Yes.

Mr. MACDONALD: You have a total figure which is partly made up of some imponderables to be negotiated with residents in the area, and it is because of that imponderable nature of part of the costs that you are not in a position now to give a complete figure?

Mr. HEARN: We could not give it in any event because the British Columbia Hydro and Power Authority has to make that final figure, and they do not consult us about it.

Mr. MACDONALD: You cannot reveal your precise figure at this time because that will adversely affect the final figure to be given by the authority?

Mr. HEARN: It would not affect it but it is not of any use; it would give a false impression. It would give a false impression because it does not include all the times.

Mr. MACDONALD: Since the part for which you are responsible will be a total figure and will in turn affect the conclusions to be arrived at by the hydro authority, you have no permission from hydro to give it?

Mr. HERRIDGE: That is the answer? You have no permission from your client to reveal the figures?

Mr. HEARN: No, not in those words. It is common practice that consultants do not, except through their clients, give that information. That is the practice followed in the normal ethics of consulting practice. There is nothing special at all; it is our behaviour in any project we undertake for an owner.

The CHAIRMAN: If this concludes the questioning of these witnesses, I thank them and Mr. Libby.

The committee will adjourn until four o'clock on Monday, when we will have as our witness Mr. F. J. Bartholomew of Vancouver.

Mr. TURNER: May I raise a point of order just before we adjourn?

This morning a brief was circulated to members of the committee. This is the brief of Mr. Bartholomew. It is a long one, and therefore I would suggest through the Chairman that members read the submission before the meeting. We have developed a practice of reading briefs here because we have not had an opportunity to look at them in advance. I would hope Mr. Bartholomew will be able to summarize the brief on Monday rather than reading each of the 48 pages. That might be possible if members read it over the weekend.

The CHAIRMAN: Is it agreed that we return to our original intention, that is to have a summary of the brief during the meeting?

Agreed.

Mr. BYRNE: Would it not be advisable for the committee to request the steering committee to endeavour to bring someone here who is knowledgeable in law and international law? We have heard a large number of witnesses who have given us technical details, and their testimony has convinced me, as one member of the committee, of the worthiness of this treaty in so far as it has been interpreted by the government representatives. Will we have someone learned in law?

The CHAIRMAN: It is a very useful suggestion at this stage and I will bring it to the attention of the steering committee.

Mr. HERRIDGE: I understand that Professor Frank Scott's name was being considered by some members of the committee.

HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 14

MONDAY, APRIL 27, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

F. J. Bartholomew, P.Eng.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (Okanagan-	Macdonald,
Byrne,	Revelstoke),	MacEwan,
Cadieux (Terrebonne),	Forest,	Martineau,
Cameron (Nanaimo-	Gelber,	Nielsen,
Cowichan-The Islands),	Groos,	Patterson,
Cashin,	Haidasz,	Pennell,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

CORRECTION (English copy only)

PROCEEDINGS NO. 7—Wednesday, April 15, 1964.

In the Minutes of Proceedings and Evidence—

Page 426, line 4 should read:

I should like to quote from a city council of Revelstoke transcript. . .

Page 441, Lines 51 and 52 should read:

You are not going to expropriate behind the hotel to the lane at the back?

Page 445, Line 24 should read:

Mr. Deane wrote to me supporting my statement.

MINUTES OF PROCEEDINGS

MONDAY, April 27, 1964

(24)

The Standing Committee on External Affairs met at 4.00 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Cashin, Chatterton, Davis, Deachman, Dinsdale, Gelber, Groos, Haidasz, Herridge, Kindt, Laprise, Leboe, Macdonald, Matheson, Patterson, Pugh, Ryan, Stewart, Turner, Willoughby (24).

In attendance: Mr. F. J. Bartholomew, P. Eng., Mr. Roy Bartholomew, P. Eng., Vancouver.

Mr. Herridge asked that certain corrections be made in the evidence of the Committee meeting of Wednesday, April 15, 1964 (Issue No. 7). The committee agreed to the corrections.

The Chairman reported that correspondence has been received from the following since the last meeting: Mr. and Mrs. A. E. Guenard of Burton, B.C.; Women's Auxiliary Council to the United Fishermen and Allied Workers Union, Vancouver; the Hon. E. C. Manning, Premier of Alberta; and the Hon. E. D. Fulton, Kamloops, B.C.

Mr. Bartholomew was called and outlined his professional qualifications.

The witness tabled with the committee a letter from the Lower Arrow Lake Board of Trade, Edgewood, British Columbia, authorizing Mr. Bartholomew to represent them at the committee's hearings and to present their opposition to the Columbia River Treaty and Protocol. Attached to the letter was a brief addressed to the committee. In reply to a question, Mr. Bartholomew stated that he endorsed the views expressed in the letter and brief.

Copies of the witness' brief having been previously circulated to the members, Mr. Bartholomew summarized his brief and was questioned.

Mr. Bartholomew read into the record a letter from the Vancouver Board of Trade and a critique prepared by the Engineering Committee of that body addressed to the Honourable Paul Martin. At the request of Mr. Turner, the witness also read into the record Mr. Martin's reply.

The questioning continuing, at 6.00 p.m., the committee adjourned until 8.00 p.m. this date, on motion of Mr. Byrne.

EVENING SITTING

(25)

The Standing Committee on External Affairs reconvened at 8.00 p.m. this date, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cameron (*Nanaimo-Cowichan-The Islands*), Davis, Deachman, Dinsdale, Groos, Haidasz, Herridge, Kindt, Leboe, Macdonald, Matheson, Patterson, Pugh, Ryan, Stewart, Turner, Willoughby (19).

In attendance: The same as at the afternoon sitting.

STANDING COMMITTEE

The Chairman presented the sixth report of the Subcommittee on Agenda and Procedure, dated April 27, 1964, which recommended as follows:

1. That the United Electrical, Radio and Machine Workers of America, District 5 Council, Toronto, appear before the Committee on Friday, May 1, 1964 (as previously agreed);
2. That the International Union of Mine, Mill and Smelter Workers, Toronto, appear before the Committee on Monday, May 4, 1964 (instead of May 1st);
3. That the United Fishermen and Allied Workers Union, Vancouver, be notified to attend the Committee on Tuesday, May 5, 1964;
4. That the British Columbia Federation of Labour, Vancouver, be notified that the Committee will receive their brief on Wednesday, May 13, 1964;
5. That the Columbia River for Canada Committee be notified that the Committee will receive their brief on Wednesday, May 6, 1964 (instead of May 7 as previously agreed);
6. That General McNaughton be recalled on Friday, May 15, 1964.

Mr. Davis, seconded by Mr. Patterson, moved that the report of the Subcommittee be adopted.

Mr. Kindt having registered objections to the manner in which the business of the subcommittee was being conducted, Mr. Byrne, seconded by Mr. Dinsdale, moved in amendment that Mr. Kindt be invited to attend the next meeting of the subcommittee on agenda and procedure, not as a voting member, but in order to allow him to discuss with the subcommittee the matters he had raised.

The question having been put on the said amendment, and Mr. Kindt having called for a recorded vote, it was agreed to on the following division:

Yeas: Messrs. Byrne, Davis, Deachman, Dinsdale, Groos, Leboe, Macdonald, Patterson, Ryan, Stewart, Willoughby (11).

Nays: Messrs. Brewin, Cameron (*Nanaimo-Cowichan-The Islands*), Her-ridge, Kindt (4).

The question having been put on the main motion, as amended, it was carried unanimously.

The committee resumed the questioning of the witness.

At 10.20 p.m., the committee adjourned until 10.00 a.m., Tuesday, April 28, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

MONDAY, April 27, 1964

The CHAIRMAN: Gentlemen. I see a quorum.

First of all, since the last meeting correspondence has been received from the following: Mr. and Mrs. A. E. Guenard of Burton, British Columbia; Women's Auxiliary Council to United Fishermen and Allied Workers Union, Vancouver; the Hon. E. C. Manning, premier of Alberta; and the Hon. E. D. Fulton.

Gentlemen, our witness today is Mr. F. J. Bartholomew who is a fellow of the American institute of electrical engineers, and is a professional engineer from Vancouver, British Columbia.

Mr. HERRIDGE: Mr. Chairman, on a point of privilege, before the proceedings start and as a result of my reading the minutes over the week end, I wish to make some corrections in the Minutes of Proceedings and Evidence No. 7 of Wednesday, April 15, 1964, which no doubt arose because of some noise at the time of my statement, and I am not blaming the reporters in any way.

On page 426 in the fourth line it reads:

I should like to quote from a British Columbia Hydro and Power Authority transcript—

This should read:

I should like to quote from a city council of Revelstoke transcript.

On page 441 at the bottom of the page I am reported to have said:

You are not going to expropriate behind the hotel to the lake at the back?

This should read:

You are not going to expropriate behind the hotel to the lane at the back?

Then on page 445, I am reported as having said:

Dr. Deane wrote to me supporting fully General McNaughton—

This should read:

Mr. Deane wrote to me supporting my statement.

Thank you, Mr. Chairman.

The CHAIRMAN: Does the committee agree that these corrections be made? Agreed.

The CHAIRMAN: Gentlemen, I have not been furnished with anything which I can read having regard to the qualifications of Mr. Bartholomew.

An hon. MEMBER: It is in the brief on the third page.

Mr. HERRIDGE: Mr. Chairman, I would like to ask Mr. Bartholomew whether he considers himself to be a person informed on the Columbia river system and treaty negotiations in view of the fact that Dr. Keenleyside stated that there are no other informed people who support the opinions of General McNaughton. What do you say about this, Mr. Bartholomew?

The CHAIRMAN: If you do not mind, could we leave this question until the completion of Mr. Bartholomew's statement? However, I would ask him to put on the record the qualifications which he does possess.

Mr. HERRIDGE: Yes, we want to hear his qualifications and why he considers himself informed.

The CHAIRMAN: Perhaps Mr. Bartholomew would tell the committee what qualifications he does have.

Mr. F. J. BARTHOLOMEW (*Electrical Engineer, Vancouver, British Columbia*): Mr. Chairman and members of the committee, in the early pages of my brief I have stated my qualifications and experience. I was educated in England and studied in Germany, working thereafter in shops of engineering works with consulting engineers and in engineering offices. I came to Canada before the first war and served with the Canadian engineers overseas. I instructed subsequently at the University of British Columbia.

I have been engaged in power plant design and construction engineering in western Canada. I have acted in a consultative capacity for most of the cities and municipalities in British Columbia through the years. I chaired a conference resulting in a report for the city of Vancouver on fuel policy. I acted for the city of Nelson in respect of a power development they were considering. I have acted for the city of Vernon in power contract negotiations. I acted for the city of Kaslo in the design and construction of a small hydroelectric plant. I acted for the city of Revelstoke in the reconstruction of a dam which had been damaged when they were trying to effect repairs; this was about 1928. I acted for the city of Grand Forks in an appeal to the water board in connection with the authority of the water comptroller over rates, as a result of which appeal a utilities act was put on the statute books of British Columbia.

I have acted for the city of Prince George in power extension studies. I have worked in central Africa. I worked from 1947 to 1957 in Uganda in doing the original studies and planning for a power development for the Kilembe mines of Frobisher Ltd. We finally selected a site and I designed and superintended the construction of a 10,000 horsepower hydroelectric plant. I made power studies in Kenya for power at another mine, and I did similarly in British Guiana.

I have been engaged on studies of the Columbia since, I guess, the middle 1950's when it came to be talked about. Before treaty negotiations started, I tried to inform both the provincial and federal authorities with regard to what appeared to me to be the proper direction which development of the Columbia river in Canada should take. I am afraid I was not of sufficient importance to have any effect.

Since then I have continued studies on the Columbia. In 1958 I endeavoured to secure the support of the Vancouver board of trade through their engineering committee to propose what appeared to me to be the policy which should be followed. Again, I had no success. We held many meetings and we produced a report which, I regret to say, was not of much value.

The CHAIRMAN: Gentlemen, we have had distributed and have had occasion to study with some care the Columbia River Treaty and Protocol brief by Mr. F. J. Bartholomew and, as was indicated at our last meeting on Friday, we were hoping that Mr. Bartholomew would succinctly summarize what he considers the essence of this submission. This would afford us the opportunity for as much questioning as possible.

Would it be possible to do that now, Mr. Bartholomew?

Mr. BARTHOLOMEW: Yes.

First of all, Mr. Chairman, may I hand to you a protest from the lower Arrow lake board of trade opposing the construction of the High Arrow dam.

Gentlemen, you will see that they have attached to that an authority for me to represent them in presenting their protest.

Mr. DAVIS: Is this same protest reproduced in the brief?

Mr. BARTHOLOMEW: No, it is not.

Mr. DAVIS: This is in addition to the brief?

Mr. BARTHOLOMEW: Yes.

The CHAIRMAN: This is a letter addressed to Mr. F. J. Bartholomew, electrical engineer, 1285 Homer street, Vancouver, 3, British Columbia. It is styled over the name of lower Arrow lake board of trade, Edgewood, British Columbia. It is signed by W. Gordon Millar, secretary. In that letter to Mr. Bartholomew are the words: "We, the lower Arrow lake board of trade, representing the communities of Edgewood, Needles and Fauquier, British Columbia, hereby take great pleasure in authorizing you to represent us before the external affairs committee at Ottawa when the matter of the Columbia River Treaty and Protocol are submitted for their consideration."

With the permission of the committee I will file this correspondence.

Mr. RYAN: Mr. Chairman, could we have from Mr. Bartholomew a statement whether or not he is endorsing these views or is he merely tabling this letter as their agent.

Mr. BARTHOLOMEW: No. In my brief which I have submitted I have a section dealing quite extensively with the High Arrow dam, and registering my objections thereto.

Mr. RYAN: I know that but I am wondering if you are endorsing what is in this letter.

Mr. BARTHOLOMEW: Yes, I am.

The CHAIRMAN: I take it, as a result of Mr. Bartholomew delivering this letter to us, he also is indicating that he comes here in the capacity of the representative of lower Arrow lake board of trade. Is that correct, Mr. Bartholomew?

Mr. BARTHOLOMEW: That is part of my capacity, sir.

Mr. TURNER: Is that letter an authorized mandate to Mr. Bartholomew?

The CHAIRMAN: I think it speaks for itself. I cannot consider it in any other way. It appears to me to be in the nature of a retainer.

Mr. BYRNE: Does the area involved include what seems to be known as the Arrow park region?

Mr. BARTHOLOMEW: I am afraid I shall have to say I am not quite certain. I think possibly Mr. Herridge could tell us that.

Mr. PUGH: Mr. Chairman, I had my hand up some time ago. I wanted to put a question in respect of qualifications, if I may.

The CHAIRMAN: I am sorry, Mr. Pugh; I had your name on the list as one who wished to put a question.

Mr. PUGH: I would like to ask Dr. Bartholomew whether his studies on the Columbia—

The CHAIRMAN: Did you say Dr. Bartholomew?

Mr. BARTHOLOMEW: I am not a Ph.D.; I am an ordinary mister.

Mr. PUGH: I thought someone hung the word "Dr." on you a moment ago. However, Mr. Bartholomew, in respect of the various studies you have made since the middle 1950's on the actual Columbia river system I was wondering whether these studies were made on your own behalf or were you acting for any government or authority?

Mr. BARTHOLOMEW: No sir. I was acting for no one but myself.

I have been a citizen of this country for over 50 years and I thought this was something which, in my later years, I could do to improve the conditions in this country and, thereby, show my gratitude for what it has done for me since I have been here.

I do not receive any remuneration; I have a fee of \$1 from the Arrow lake board of trade as a retainer. But, that is the only remuneration I have received from anyone during the whole course of these proceedings.

Mr. TURNER: Mr. Chairman, I have a further question in respect of the nature of the mandate.

Do I understand that the lower Arrow lake board of trade is the same entity as the lower Arrow lake chamber of commerce you mentioned at page 45?

Mr. BARTHOLOMEW: I am sorry, Mr. Turner; this is a misnomer on my part.

Mr. TURNER: You mentioned the communities of Needles, Fauquier and Edgewood; are these the only three communities which are members of the lower Arrow lake board of trade?

Mr. BARTHOLOMEW: I presume these are the communities through which the membership speaks.

Mr. TURNER: Then, you do not speak for the larger centres in the Arrow lakes?

Mr. BARTHOLOMEW: No.

Mr. BYRNE: Mr. Bartholomew, did I understand you to say that the board of trade of south Arrow lake was prepared to pay \$1 in order to have this submission put before the committee?

Mr. BARTHOLOMEW: Yes.

Mr. BYRNE: And, the amount was \$1?

Mr. BARTHOLOMEW: Yes.

The CHAIRMAN: Now, Mr. Bartholomew, would you proceed with your summary?

Mr. HERRIDGE: There are people in this country who to date have not required large fees to put the country's case before the committee.

Mr. BARTHOLOMEW: Mr. Chairman, initially in my brief I have summarized what appeared to me to the unrecognized conditions surrounding the Columbia river development.

There is one aspect in the Columbia river development which is quite unusual. When communities and utilities are contemplating load development or power development first of all they appraise the loads which they are going to serve. They anticipate the load requirements and, with those studies, they base the developments which most economically can be carried out to supply these loads. Here we have started with a vast block of potential power and we have gone ahead with plans for its development with little regard for the capacity of consuming it. Never in my life have I seen the development of power proceed on such a basis. I think Mr. Davis will agree with me in this point of view. That, I think, was the first mistake that was made.

When the United States army engineers completed their very comprehensive report, which was issued in 1958, consisting of five volumes, of which I have two here, they recognized immediately that it was uneconomical for Canada to contemplate developing the Columbia river. I can, if you like, quote chapter and verse for their point of view.

I will read a statement from Volume I, page 348 of the "Water Resource Development Columbia River Basin", United States army engineers division, published in 1958 as follows:

Development to date in the Canadian portion of the basin has been small because of the limited needs. Water resource development can be

expected to increase moderately with the expansion of irrigation, growth in population, and industrial expansion in the Trail-Penticton load area. Power demands in the Columbia basin area of British Columbia will continue to be small however, in comparison with the needs of the more populous western portion of the province. Service to the Vancouver-Victoria load area from Columbia river projects in Canada would be handicapped by distances. Transmission costs could prove prohibitive until they can be absorbed in large prime power deliveries. Other large hydro-power potentials are reported to be under active study in British Columbia for development in the interest of meeting the immediate needs of the Vancouver-Victoria load area. Accordingly, there appears to be little incentive at present for developing large blocks of power within the Columbia basin of Canada.

This essentially is the Bible of engineers regarding the hydrological, power and economic development of the whole Columbia basin. It is further stated in this publication as follows:

The principal benefits from storage in Canada at this time would accrue downstream in the United States for flood control and additional power generation. The extent to which the costs for such benefits would be shared with Canada is a matter for international study under sponsorship of the International Joint Commission.

That illustrates the cloud under which we started to negotiate this treaty.

Mr. Chairman, I wonder whether I might make an apology at this time. There are two or three typographical errors in my brief. It was a tremendous ordeal to have this brief prepared for you in the time available although I did have much of the material generally assembled.

The first error appears at page 18 at the bottom of the first paragraph. I have there the figure 50 billion kilowatt hours and it should read 25 billion kilowatt hours.

The second error appears at the same page at the bottom of the first paragraph. The figure \$150 million per year should be \$75 million per year.

I should like to mention one further small error which appears on page 28B in the second paragraph. In that paragraph there appears the figure 200 million KWY's, it should be 200,000 kilowatt years.

There is one further correction to be made on page 31 at the beginning of the last paragraph. The same figure of 200 million kilowatt years appears and it should be 200,000 kilowatt years.

I hope I have not left any material typographical errors of this sort throughout the body of the report and I apologize for not having caught the ones to which I have referred.

I point out in my brief that the potential development in Canada in respect of the Kootenay and Columbia rivers is in excess of 300 million kilowatt years. The potential is 3,500,000 kilowatt years of firm power downstream in the United States. The United States is in the very happy position of being able to use stored flood waters in many of their plants with only a small addition of machinery. Eventually there will be a new machine house at Grand Coluee and new machines at Chief Joseph. There is already large excess capacity in most of their plants so that the stored summer water will be useable in winter low water periods when adequate storage is available.

I mentioned that we had started out in our efforts to negotiate a Treaty without appraising our load requirements. At the present time the total load on the British Columbia hydro system is between 1,100,000 and 1,200,000 kilowatts. I referred to it as 1,100,000 but I think it is closer to 1,200,000. I do not have the

latest figures, but they do have a capacity at the present time of 1,700,000 kilowatts and are in the process of installing two machines which will bring their capacity to 2 million kilowatts.

Now, the general requirements for spare capacity range from 1 per cent to 15 per cent. We have here something like 70 per cent, and more is indicated. You cannot blame the British Columbia Hydro for this condition because in the middle 1950's and afterwards it was anticipated by the predecessor company, the British Columbia Power Corporation, that load growth might take place at a rate of 10 per cent per annum, and they committed themselves to 600,000 kilowatts of thermal development in the ensuing years, with the right to postpone the installation as conditions seemed to justify. However, the important thing to realize is that it will take 10 years' time before our loads get up to 2,200,000 or 2,300,000, and if we add on 15 per cent for stand-by capacity, then $2\frac{1}{2}$ million will be all the generating capacity we should be able to use in 10 years' time.

Now, we have over two million available kilowatts at present. As you know, development is taking place in the Peace river to bring a large block of initially high cost energy to Vancouver. We hope that when it is developed in 25 years' time it will be low cost, but the capacity that is expected from Peace river will eventually amount to nearly three million. We expect that by 1968 they will have delivered to Vancouver 500,000 to 700,000 kilowatts, of potential energy. It is a very generous quantity to meet the anticipated load. These conditions were not studied when we entered into our treaty. There is no outlet for any generating capacity that might be installed at Mica within the reasonable future.

In regard to the matter of planning the generating capacity for future loads, Sir Alexander Gibb and partners and Merz and McLellan, consulting engineers, said load and development forecasts extending more than 5 years ahead and at the very outside 10 years must be taken with considerable reserve. I can produce the quotation from the report which I have here, if the committee so wishes. Similarly, the Montreal Engineering expressed considerable concern at planning such a long distance ahead which was necessary to foresee some utilization of power from the Columbia river. I think we went into this matter without a really comprehensive economic understanding of the power situation in British Columbia.

After the treaty was signed and awaiting ratification British Columbia called in the most distinguished group of consulting engineers—I refer to Sir Alexander Gibb, with whom were associated Merz and McLellan. They were called in to make a study of the Columbia river power costs versus power costs from other sources. Unfortunately, their terms of reference were so restricted that they were not permitted to make any reference to the equities of the treaty or to Canadian needs. Similarly, our government here engaged the services of Montreal Engineering to make a survey of power costs for Columbia treaty power after they had signed a treaty. If those responsible for our developments had followed normal practice—and I am quite sure Mr. Davis will agree with me here—they would have called in the engineers *before* instead of *after* the treaty was signed.

Gentlemen, the Chairman has suggested that I should not be talking too long so as to leave an adequate time for questions. I have dealt here more with the generalities than the specific items to which I have attached criticisms. I think those are very important, and I hope you will accept them.

I should say now that I did send 100 copies of an addendum which constitutes part of my brief. Have they been made available, sir?

The CHAIRMAN: Yes, thank you.

Mr. FAIRWEATHER: When were they distributed?

Mr. BREWIN: I have a brief, but no addendum.

Mr. DINSDALE: I also have no addendum.

Mr. HERRIDGE: Was this in French?

Mr. BARTHOLOMEW: I sent a small section translated into French. I thought it might be of some assistance to some of our friends from Quebec.

Mr. HERRIDGE: I think we should compliment the witness for doing this. This is the first witness who has provided evidence in French. This is a very good gesture indeed.

Mr. TURNER: Do I understand Mr. Bartholomew is now ready for questions? Mr. Bartholomew, when we were discussing your qualifications I asked you which communities were covered under the lower Arrow lake board of trade. You told me: Needles, Fauquier and Edgewood. I want to ask you whether it is not true, to your knowledge, that the following people from the larger sections of the Arrow lakes area have gone on record as favouring early ratification of the treaty: Mr. Wilson, the president of the board of trade; Mr. Carl Loeblich, village chairman at Kinnaird; Mr. W. H. Reid, village chairman at Castlegar and Mr. Elmer Kraft, president of the Castlegar and district chamber of commerce. Are you aware of that?

Mr. HERRIDGE: I can give evidence in that respect. These are personal opinions. Neither the Nakusp chamber of commerce nor the Castlegar chamber of commerce has changed its opinion.

Mr. BARTHOLOMEW: I am not aware of that.

Mr. BREWIN: Apparently Mr. Herridge is aware of it.

Mr. TURNER: In your letter of transmittal which appears in the brief, you say there has not been enough time to prepare a brief which would be satisfactory to you.

Mr. BARTHOLOMEW: That is correct.

Mr. TURNER: Before the committee begins questioning you on your brief, can you tell us whether you have any reservations or other corrections to make in this brief in the light of the view you made known ten days ago or whether you are prepared to stand behind all the statements?

Mr. BARTHOLOMEW: I am prepared to stand behind the brief and I will do my best to verify everything that is in it.

Mr. TURNER: On page 2 of the letter of transmittal you refer to the large staff of specialists in law, economics and engineering which the United States government had brought over, and you mention that they had experience in such projects, development and planning throughout the Columbia basin for 25 years and over. Who are the gentlemen to which you are referring?

Mr. BARTHOLOMEW: I am referring to Mr. Bennett who was a member of the interior department of the United States—a singularly informed man with a very competent and experienced staff; to General Itschner and his staff; and to several others whom I have met from time to time but I cannot remember their names. You go down to the Columbia basin, you see them and you meet them, and you admire their work.

Mr. TURNER: On page 2 of your letter of transmittal you say that you feel confident that the results of your calculations are within the range of slide rule errors. What is that range? I am not familiar with how wide could be a margin of slide rule error.

Mr. BARTHOLOMEW: Within two or three per cent at the worst. If there are large errors, then I have slipped, or maybe the slide rule slipped.

Mr. TURNER: We are talking about the neighbourhood of one or two per cent?

Mr. BARTHOLOMEW: That is the order of error at which I should not be surprised.

Mr. TURNER: Again referring to the letter of transmittal, you say that there simply has not been enough time to read, digest and study the contents of the protocol and the many published documents and releases. You also say that despite the expenditure of over 200 hours on the work, at least half as long would have been needed to prepare a brief which would have been reasonably satisfactory. Two hundred hours at, say, 25 days in a month and about eight hours a day, is about one month's solid work, if you are working full time on the brief.

Mr. BARTHOLOMEW: Can you work at eight hours a day on this sort of work? If you can, you are a better man than I am.

Mr. TURNER: My assumption is that 200 hours is about a month's work. You may disagree with this assumption.

Mr. BARTHOLOMEW: I cannot work as long hours at that.

Mr. TURNER: I am just wondering whether, with that amount of preparation, you feel competent to say, as you do in your letter, that you have serious concern at the adequacy of the Canadian technical advisers, that is to say the Canadian professional engineers, lawyers and economists, who have had years of experience on the project. I am interested in your comments.

Mr. BARTHOLOMEW: Well, sir, if you read that treaty, 75 per cent of it or more was written by United States personnel. You do not need to have any authority to say that. If you read and study it you will find it full of clauses that no Canadian would have written. The Canadian pen only seldom shows up, and the protocol illustrates precisely the same state of affairs.

Mr. TURNER: When you stated your qualifications, Mr. Bartholomew, you referred to the fact that you designed and directed construction of power plants for mines. What is the size of the power plants you personally designed?

Mr. BARTHOLOMEW: I designed systems that were quite small, 20,000 to 40,000 horsepower. However, I would like you to know, sir, that the procedure in designing a 100 horsepower hydro-electric plant involves exactly the same constants and consideration that designing a power plant for half a million would require.

Mr. TURNER: How big would the one at Mica be under this projected treaty? I am speaking of at site power.

Mr. BARTHOLOMEW: The projection for Mica is about 750,000 kilowatt years average capacity, which however is depreciated by virtue of the water regulation that would result to meet the demands of optimum power generation at Mica and below.

Mr. TURNER: The largest plant that you built, is somewhere between 30,000 and 40,000 kilowatts.

Mr. BARTHOLOMEW: That is correct.

Mr. TURNER: On pages five and six of your brief you say that after the treaty had been signed and when a few Canadians had the knowledge, experience and time to study the matter, that is after signature of the treaty, those Canadians began to study it and make criticisms. Who are these people, to your knowledge?

Mr. BARTHOLOMEW: General McNaughton, for whom we all have regard, was one of them; Mr. Higgins was another, and Mr. Ripley was another. Dr. Austin Wright, who used to be secretary manager of the engineering institute, was another, and I would ask General McNaughton to check me on that. He has been a student and critic of the treaty. I succeeded in getting the engineering committee of the Vancouver board of trade, comprising eight or ten

prominent engineers in Vancouver, to engage in studies of the treaty. They started off by being highly critical and had no intention of going along with me, but eventually as we took matters to them they came to see that the information from the official documents was irrefutable. The Vancouver engineering committee of the board of trade did a lot of work studying this treaty and persuading the council to pass much more emphatic resolutions than the council finally adopted for the Board of Trade.

Mr. TURNER: Reading through your brief, Mr. Bartholomew, I notice that your interpretation of the treaty and the protocol documents differs radically from the interpretation given in the government presentation paper, the blue book.

Mr. BARTHOLOMEW: You are so right.

Mr. TURNER: More specifically so on pages 114 to 166, the whole section of the interpretation of the treaty and protocol. These documents were prepared, if I understand correctly, by both legal and engineering advisers to the government who had considerable experience with the Columbia river document.

Mr. BARTHOLOMEW: Unfortunately, I only got this presentation a day or so before I left Vancouver and I have not thoroughly studied it.

Mr. TURNER: All I am saying, Mr. Bartholomew, is that your interpretation seems to differ quite radically from the interpretation given in the government's presentation paper. Without taking you through the paper clause by clause let me ask you whether you have any legal background?

Mr. BARTHOLOMEW: I cannot claim that, but I have been constantly called to appear in the courts in cases where technical evidence regarding water rights, damages and compensation had arisen. I am in the courts once or twice a year, and have been for many years. To that extent I have a little legal experience. I am not a lawyer, but I have had that background over the past many years.

Mr. TURNER: I take it you were called as a witness to give engineering evidence?

Mr. BARTHOLOMEW: No, not entirely, when you are called in on water license matters you are expected to know the Water Act. I first came into contact with the waters act in 1928 and 1929 I acted for the city of Grand Forks in a Water Act case and as a result of that hearing the utilities act was written. Mr. Francis McDermid who represented a union of British Columbia municipalities, and the city of Grand Forks, had retained me to assist them. He was subsequently requested to assist in the drafting of clauses of the new act, and Francis McDermid brought the matter to me to secure my opinion. So I have had some experience, and I frequently have had to interpret the Water Act in water rights cases.

Mr. TURNER: Have you had any recourse to legal counsel to advise you on the treaty?

Mr. BARTHOLOMEW: Yes, I have consulted two or three lawyers, and they threw up their hands and said that it was very difficult to understand, and that unless I was prepared to put them on permanent retainer or something, I could not get a professional opinion.

Mr. CHATTERTON: Would you mind giving us the names of the experts you consulted?

Mr. BARTHOLOMEW: No; I would not.

Mr. TURNER: You yourself admitted three or four minutes ago that you had not had an opportunity to study this presentation before.

Mr. BARTHOLOMEW: I have read part of it, but I have not given it a comprehensive study. You are quite right.

Mr. TURNER: Throughout the brief which you prepared you have made disparaging references to the competency of the professional advisers of the government.

Mr. BARTHOLOMEW: No, I have not. I have referred to their adequacy, but I have not made any reflection on their competency.

Mr. TURNER: Let us look at page one of the brief when you refer to the seeming inadequacy of the Canadian technical advisers.

Mr. BARTHOLOMEW: Yes.

Mr. TURNER: Is that not a reference to their competence?

Mr. BARTHOLOMEW: No.

Mr. TURNER: To what does it refer then?

Mr. BARTHOLOMEW: It refers to the fact that they did not have a staff nearly large enough and adequately experienced to tackle this job; that is inadequate, is it not?

Mr. TURNER: On page 4, you say that different results could have been retained and you use the words "if experienced and competent...advisers" had been on the job. What do you mean by that?

Mr. BARTHOLOMEW: Where are you now, please?

Mr. TURNER: On page 4.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: Line 13.

Mr. BARTHOLOMEW: Yes, I am just reading it, "just as had been done by the United States army engineers". We did not have a team that compared with the United States army engineers.

Mr. TURNER: Yes, but in 1-13, the second sentence you say:

They would have demanded that if dams were to built, then they should be paid for by the United States and such a team, if experienced and competent, would have insisted upon terms for the utilization of the water in Canada which did not tie her hands and prejudice her optimum development.

I take it that you are referring to our team, our engineers, and you refer to them as "if experienced and competent". You must have meant that they were inexperienced and incompetent.

Mr. BARTHOLOMEW: It is my feeling that we never set to work a team of experience and competence to study this whole problem before we started negotiations on the treaty. Actually years of work should have been undertaken studying the whole northwest, both United States and Canadian, out in the country, studying transmission and generation for at least two years; and I say even in that time they could not have done the same justice to the problem that the United States army engineers have done. Then we could have had a better start at negotiating.

Mr. TURNER: Just for the record, at 28(a), at about the tenth line from the top, you say:

There are a number of discrepancies, contradictions and errors... when errors and discrepancies appear of the nature referred to, one becomes seriously aware of the inadequacy of the government's technical adviser.

Mr. BARTHOLOMEW: I have said it was inadequate. We can only assume that they should have had an adequate staff to tackle this job. There are mistakes in this white paper, plain mathematical errors, and these did alarm me, sir.

Mr. TURNER: I want to be more specific about the charges you have made against the technical officers of the government.

Mr. BARTHOLOMEW: I have not made charges against them.

Mr. TURNER: You have accused them of being inexperienced and incompetent.

Mr. BARTHOLOMEW: No, I have not. I said we should have had an experienced and competent team to go around and survey the whole situation before we started.

Mr. TURNER: Let me read you the names of some of the men who represented this country in the negotiations and in the preparatory work. First, I mention General McNaughton, General A. G. L. McNaughton. What is your opinion of his competence and experience?

Mr. BARTHOLOMEW: General McNaughton is a great engineer.

Mr. TURNER: Mr. T. M. Patterson, director of the federal government's water resources branch, with 30 years of resource planning experience. What is your opinion of him?

Mr. BARTHOLOMEW: I have met him.

Mr. TURNER: Do you consider him to be inexperienced and incompetent?

Mr. BARTHOLOMEW: I have never said so.

Mr. TURNER: Do you know Mr. M. Ward, director of planning, Ontario Hydro, on loan to treaty negotiators?

Mr. BARTHOLOMEW: I do not have the privilege of his acquaintance.

Mr. TURNER: Do you know Mr. A. F. Paget, British Columbia comptroller of water rights?

Mr. BARTHOLOMEW: Yes, I know him.

Mr. TURNER: Do you consider him to be inexperienced and incompetent?

Mr. BARTHOLOMEW: I have never said so.

Mr. TURNER: And what about Mr. E. R. Peterson, who was engineering adviser to the Canadian section of the International Joint Commission?

Mr. BARTHOLOMEW: I do not know him.

Mr. TURNER: And Mr. Gordon M. MacNabb, with ten years of concentrated experience on the Columbia river, and who participated in the development of the Columbia board's sequence studies including General McNaughton's favourite sequence IXa? Do you know him?

Mr. BARTHOLOMEW: I have met Mr. MacNabb.

Mr. TURNER: Do you consider him to be inexperienced?

Mr. BARTHOLOMEW: I have never said that he was not experienced.

Mr. TURNER: And Mr. H. T. Ramsden, district engineer of the water resources branch, with 15 years experience on Columbia matters?

Mr. BARTHOLOMEW: I know Mr. Ramsden.

Mr. TURNER: What is your opinion of Mr. Ramsden?

Mr. BARTHOLOMEW: Mr. Ramsden is in a position in Vancouver in charge of the water rights branch there, and that is my contact with him.

Mr. TURNER: And Mr. Gordon Kidd, deputy comptroller of British Columbia water rights, with over ten years of Columbia experience. Do you know him?

Mr. BARTHOLOMEW: I have met Mr. Kidd.

Mr. TURNER: What is your claim?

Mr. BARTHOLOMEW: I have never made any reflection upon him.

Mr. TURNER: Do you consider him to be a good engineer?

Mr. BARTHOLOMEW: I think he must be. He has been on the job for a long, long time.

Mr. TURNER: And Mr. A. W. Lash, formerly of the British Columbia Power Commission (now retired). Do you know him?

Mr. BARTHOLOMEW: Yes.

Mr. TURNER: Do you know him in his professional capacity? Do you know him as an engineer?

Mr. BARTHOLOMEW: I cannot say that I have had any engineering association with him. I cannot remember having had any engineering association with him.

Mr. TURNER: What is your view of his professional competence?

Mr. BARTHOLOMEW: I feel quite sure that he has filled the position in which he was placed to their satisfaction.

Mr. TURNER: I have one more name, Mr. P. R. Purcell, now chief engineer of the British Columbia energy board and formerly a member of the international Columbia river engineering board. Do you know Mr. Purcell?

Mr. BARTHOLOMEW: Yes.

Mr. TURNER: What is your opinion of his professional competency?

Mr. BARTHOLOMEW: I have not had any engineering association with him. I presume Mr. Purcell in his own field is quite competent.

Mr. TURNER: In view of these statements, would you be prepared to withdraw the words you have used on page 4 in which you challenge their experience and competence, and speak in terms of the seeming inadequacy of Canada's technical advisers?

Mr. BARTHOLOMEW: I regret, sir, that the treaty and protocol do indicate that Canadian interests have not been adequately looked after.

Mr. TURNER: On page 3, item 1-11, you say:

—a team should have been set up at least two years before negotiations started—

In other words, I take it to be your criticism that Canada only set up a team after the negotiations started. I am just wondering whether you are aware that a team did, in fact, exist for more than two years before negotiations started?

Mr. BARTHOLOMEW: You know, I made a mistake there. Two years is not nearly enough. I was going to mention this earlier today, but I overlooked it. I think it is a five year job. Look at this. The U.S. Army Engineers report it is the production of five, six, seven, eight years work. I believe it cost millions. We have not been able to show in our Canadian reports any appraisal of the Columbia river basin that compares with it. It is the absence of these published reports which constitute the evidence of what has not been done. When one virtually has let the United States write the treaty, one cannot help but think that the Canadian engineering—I am thinking not only of the engineering, but also the Canadian preparation of the treaty—was inadequate.

Mr. TURNER: Of the engineers whose names I have mentioned to you, some of them were involved in the work of the international Columbia river engineering board which, as you know, advised the International Joint Commission on the proposed principles. They were all involved in the negotiations in respect

of the Columbia river treaty and protocol. Five of those engineers who assisted the treaty negotiators participated in the work of the international Columbia river engineering board. Earlier in these hearings I introduced a statement made by General McNaughton in March, 1960, before the external affairs committee, in which he said that the engineers of this board—that is to say, the international Columbia river engineering board—consisted of—and now I use the general's words—"gentlemen whom we regard as the best experts in the North American continent on these matters. Do you agree with the general's assessment of their professional qualifications?"

Mr. BARTHOLOMEW: Not knowing them I do not agree or disagree. You see, you started this by telling me of the people who were employed in preparing the principles. If those principles had been applied to the treaty, you would have an acceptable treaty. It is the abandonment of the principles in the treaty which has ruined this whole situation.

Mr. TURNER: Those are all the questions I have for the moment.

The CHAIRMAN: Mr. Macdonald, and then Mr. Herridge.

Mr. MACDONALD: Mr. Bartholomew, I refer to your brief at page 13, at the bottom of the page, where you say:

From the Canadian point of view, any diversion at Canal Flats as permitted by the treaty is highly undesirable. The first diversion should be at Bull river some miles further down, to be followed by a final diversion at Dorr on the river near the boundary.

Firstly, I should ask you, are you aware that in addition to the studies carried out by the engineers referred to by Mr. Turner, both the Montreal Engineering Company Limited and Crippen Wright Engineering Limited conducted detailed engineering studies of the site prior to the commencement of negotiations.

Mr. BARTHOLOMEW: And then what?

Mr. MACDONALD: As a result of which they reported in 1957 and 1959 respectively. Do you consider those studies adequate?

Mr. BARTHOLOMEW: I do not consider the diversion of the Kootenay river at Canal Flats a proper diversion to make, if that is the question.

Mr. MACDONALD: I said, do you consider adequate the studies made by those two engineering companies?

Mr. BARTHOLOMEW: I have never seen the reports. I endeavoured to obtain them from the water comptroller in Victoria. There was only one copy and I could not go there to read it and therefore could not obtain access to it.

Mr. MACDONALD: I am advised both of those documents have been available for some time.

Mr. BARTHOLOMEW: I applied for the Crippen Wright report several times and was told it would be available, but the final advice I received from Mr. Macdonald was there was only one copy and I could come to Victoria and study it. I have been unable to do that.

Mr. MACDONALD: Montreal Engineering reported in 1957 with regard to the diversion at Canal Flats and said:

This is probably the only project proposed in the Columbia basin in Canada which can be described as simple.

The same company, in testimony last week, indicated that the treaty plan with the Canal Flats diversion was better than the Dorr-Bull river-Luxor plan. Do you think their judgment is to be accepted in that light?

Mr. BARTHOLOMEW: I think they made a mistake. I do not think you can divert the Kootenay water into the Columbia at Canal Flats. First of all you

have to take your water down the Columbia, having diverted it down at peak flood periods to get enough to make up 1,500,000 acre feet per year. The winter flow goes down to as low as 200 cubic feet per second, and the summer flow is 7,000, 8,000 or 9,000 cubic feet per second, and if you want to get 1½ million acre feet down at Canal Flats you have to take a big chunk down at flood periods. I have been in Golden when the Kicking Horse river and Columbia river have been in flood, and there has been water on the streets. If you put on top of that water from Canal Flats, you will create a worse situation in Golden. Furthermore, if you increase the water going down the Columbia river by 5,000 or 6,000 feet per second to get it into Golden, you will flood land that presently is under cultivation. There is quite a bit of land in the Windermere valley which is under cultivation or which could be but for the flooding, and you will merely increase the amount of flooded land. I know the country.

Personally, I cannot agree with that diversion. Furthermore, if you divert the water from the Kootenay at Canal Flats into the Columbia during the high water season, you are going to have to come to a decision with regard to efficiency of usage of that water at Mica. To get the benefit of that you should release it more or less the year around and not let it flood down during the flood season. So, I cannot agree with the Montreal Engineering and cannot agree with Crippen Wright.

Mr. MACDONALD: You say you cannot agree with them even though you have not examined their reports and even though they have done detailed studies on the site?

Mr. BARTHOLOMEW: You told me what they say. I have done detailed studies on site, and I disagree with the proposals they make.

Mr. KINDT: What you feel is that the synchronization of the flood crests would make a bigger flood, by bringing the two crests out together, than if you did not do anything at all. If you did not build any structures at all, and let that water get in before the other came down, there would be less flooding?

Mr. BARTHOLOMEW: Because of the fact that the period of flooding of the Kootenay river at Canal Flats is synchronized almost exactly with the Columbia river at Golden; what you need to do is put a retaining dam to the north at Luxor, which is the obvious place, hold the water there and release it when it will be most effective. But, the 2,000 cubic feet per second, which is 1½ million acre feet per year, is too small a quantity to justify the building of a retaining dam and, I say, the whole diversion is a bad one.

Mr. MACDONALD: Mr. Bartholomew, going on to another point, the implication I draw from page 9 of your brief is that Canada should have committed 24.4 million acre feet under the treaty, and you say this commitment would not hinder our generating capacity at Mica and below.

Last week General McNaughton stated:

In the course of the treaty negotiations I had an opportunity to advise the Canadian negotiators that when at site power came to be installed at Mica and downstream therefrom the allocation of 15.5 million acre feet was excessive and damaging to Canadian interests out of all proportion to the benefit credited downstream. I propose that it be reduced to 12.5 million acre feet.

Do you feel the general was wrong in making that recommendation?

Mr. BARTHOLOMEW: That recommendation was perfectly valid in the absence of a co-ordination agreement between Canada and the United States. The development of our resources on the Columbia without that co-ordination agreement does not permit either of us to get the full benefit of the storage

and, without that agreement, well, I will go along. But, I want to point out that the principle which was enunciated by the International Joint Commission was that provision should be made for a co-ordinating agreement. That is one of the most serious things that has been left out of the treaty.

Mr. MACDONALD: It has been suggested to us by several of the witnesses who appeared here—and I hesitate to misquote General McNaughton—that one of the parallels of a co-ordinating agreement is that it would be run for the benefit of the system as a whole, of which the United States should have the lion's share.

Mr. BARTHOLOMEW: Mr. Macdonald, I do not think you are familiar with the nature of a co-ordinating agreement. I have with me a co-ordinating agreement which is being made between Bonneville and the various American utilities developing power in the Columbia basin. I do not suppose you want to have this as a part of the presentation, Mr. Chairman?

The CHAIRMAN: No.

Mr. BARTHOLOMEW: This is an agreement, sir, which defines and protects the rights of all the contributors of storage and power, integrated with the supply to loads, and unless a co-ordinating agreement is properly drawn and protects your interests it is worse than useless. I am quite certain if you consulted the Ontario Hydro they would show you how to define the principles of a co-ordinating agreement which would produce optimum power from a hydro thermal system without anyone getting anything less than the best. That is why it is so necessary to define the principles which must be followed in a co-ordinating agreement.

Mr. MACDONALD: Do you advocate acceptance of sequence IXa or which is otherwise referred to as the McNaughton plan?

Mr. BARTHOLOMEW: Sequence IXa, as a development plan, is the one which eventually should be adopted, and I rather think you gentlemen will come to agree with that opinion.

Mr. MACDONALD: When you say "eventually", do you mean—

Mr. BARTHOLOMEW: If I may interrupt, I mean not today.

Mr. MACDONALD: Assume we start over again, are you suggesting the implementation of this right away, soon after appropriate arrangements are worked out with the United States?

Mr. BARTHOLOMEW: An agreement should come along those lines. The logical thing at the present time is to do what I suggested here; we should forget the auxiliary storages. There are only two storages which people are agreed upon, namely Mica and Duncan, and we could revert to the scheme of building Mica. Mica will give the United States 12 million acre feet of potential storage or, shall I say, will share 12 million acre feet with us. It will give them essential major flood benefits.

With Duncan it will very nearly add up to the $7\frac{1}{2}$ million or, perhaps I should say, between them they will give you 6 million acre feet of flood storage to control floods at Dallas to 800,000 cfs.

I quote a report here issued in 1955 or 1956 by Jack D. Stevens of Seattle. This gentlemen might be well known to some of you. I think Mr. Davis knows him. I would like to make excerpts from his report. He presents what appears today to be a new point of view of the Columbia River development—although it is 7 or 8 years old. Semi-official approaches were made in 1955 or 1956 to British Columbia by the Puget Sound utilities group,—which, incidentally, is made up of the following: Seattle City Light, Tacoma City Light, Puget Sound Power and Light Company, Snohomish county public utility district number one, and Chehalis county public utility district number one—to determine whether British Columbia was prepared to allow a dam at Mica to be

constructed. At that time, the Puget Sound utilities group discussed providing \$250 million toward the construction of the dam at Mica and also discussed some sharing of downstream benefits with British Columbia.

It was stated in the British Columbia house that there would be some sharing of benefits. However, that is not mentioned in Mr. Stevens report.

I quote Mr. Stevens:

The Mica creek dam would function as a comprehensive over-all water and power development program in British Columbia. The dam would be a rock fill structure approximately 700 feet high impounding 10.5 million—(we know now that the dam has a capacity of 12 million)—acre feet of usable storage for use at the site and through downstream plants in British Columbia and in the United States. This is slightly more than the combined total of usable storage in the Hungry Horse, Flathead lake, Albeni falls, and Grand Coulee reservoirs.

Studies show that 800,000 kilowatts of prime power could be developed at the Mica creek site and 500,000 and 300,000 at Downie creek and Revelstoke canyon respectively. If operated to produce these amounts of prime power in British Columbia, the water releases would also increase power production at United States plants on the lower Columbia by 1,100,100 kilowatts. The benefit of 1,100,000 kilowatts refers only to United States plants existing or under construction. An additional 690,000 kilowatts of prime power would result if the following Columbia river plants were constructed: Wells, Rocky reach, Priest rapids and John Day.

Mr. MACDONALD: To get back to sequence IXa would you say, in other words, you would not propose an early construction of the Dorr-Bull river-Luxor complex?

Mr. BARTHOLOMEW: Certainly they would follow on the completion and utilization of Mica.

Mr. MACDONALD: Therefore, would you agree with the point of view which General McNaughton expressed last week, namely that the skyrocketing land values in the east Kootenays would compel early construction at Dorr-Bull river-Luxor, even if they had to be carried out at a loss so that when they ultimately came to be built the cost would not have increased too much.

Mr. BARTHOLOMEW: Well, sir, if that condition were feared, the simplest and best way of tackling the problem would be to acquire the land only at this time and hold it in reserve until you wanted to build dams.

Mr. MACDONALD: Did I understand you to say earlier that you did not think that the capacity at Mica should be developed before it is needed?

Mr. BARTHOLOMEW: Mr. Macdonald, you are misquoting me. I said we should study our needs before we decide on a development program.

Mr. MACDONALD: Are you stating that the British Columbia Hydro and Power Authority has not made a study of the needs in British Columbia?

Mr. BARTHOLOMEW: I did not say that at all.

Mr. MACDONALD: I am afraid I cannot understand your remarks.

Mr. BARTHOLOMEW: What I said is that before Canada and British Columbia make any step toward the development of the Columbia river I consider that we should have made a comprehensive study equivalent in nature to that which was done by the United States army engineers. The army engineers themselves recognized, as was stated in the statement which I read, that any attempt in respect of developing the Mica project at the time the report was written was uneconomical. That report was written and there was not then such a surplus of generating capacity in the lower mainland as there is today.

Mr. MACDONALD: Mr. Bartholomew, at page 46 of your brief you state that geologically the Windermere valley is a far more attractive valley in which to build dams. What reports do you have to support that statement and can you tell us the depth of bedrock at the Luxor-Bull river sites?

Mr. BARTHOLOMEW: I am afraid I am unable to answer that question. I have discussed the Rocky mountain trench with geologists, but I cannot answer your question on the basis of first hand knowledge. I am advised that the structure in the Windermere valley is essentially bedrock. Geologists have told me that while criticisms have been made about the fact that only one whole was sunk to determine the situation at the Dorr site, it is almost certainly a suitable dam site. The only reason they drilled that one hole was to determine whether the structure continued through in such mass and extent to ensure the possibility of a sound foundation.

Mr. MACDONALD: Could you identify the geologists for us?

Mr. BARTHOLOMEW: I believe Mr. Bill Smitheringale informed me about the situation.

Mr. MACDONALD: What is Mr. Smitheringale's background?

Mr. BARTHOLOMEW: Mr. Smitheringale is a Ph.D. When I first knew him he was the geologist-manager of Island Mountain Gold Mine in the Cariboo. He subsequently left that company and started a consulting practice. He was never able to make a brilliant enough report satisfy the brokers and accepted employment with the Conwest Company who sent him out into British Columbia. He solved the vein structure for United Keno Hill Mine which has been since then a great success. Mr. Smitheringale was the individual who located the Cassiar Asbestos deposits. In Western Canada Mr. Smitheringale is considered one of the best geologists.

Mr. MACDONALD: Mr. Bartholomew, you have referred to two projects up in the Yukon. When did Mr. Smitheringale work on the on site investigations in the Windermere valley?

Mr. BARTHOLOMEW: I cannot tell you what work he has done in respect of the Windermere valley but he does know the geology in respect of the Rocky mountain trench.

Mr. MACDONALD: Did he inform you that bedrock would be available at the Luxor-Bull river-Dorr sites?

Mr. BARTHOLOMEW: He said that the result of the drilling of a hole at the sites indicated the probable availability of good foundations.

Mr. MACDONALD: Thank you very much.

Mr. HERRIDGE: Mr. Chairman, I should like to ask several questions.

Mr. PUGH: Mr. Chairman, I should like to ask one or two related questions.

The CHAIRMAN: If your questions are short rather than extended and related to this subject perhaps you should ask them now.

Mr. HERRIDGE: If Mr. Pugh has several related questions I will be glad to wait to ask mine.

Mr. PUGH: In respect of this Bull river-Luxor-Dorr project, would the Windermere valley be flooded rather than the Kootenay valley?

Mr. BARTHOLOMEW: That is correct.

Mr. PUGH: Thank you.

Mr. HERRIDGE: Mr. Bartholomew, do you consider yourself a thoroughly informed person in respect of this subject?

Mr. BARTHOLOMEW: I think I am, Mr. Herridge.

Mr. TURNER: I did not hear the question.

Mr. HERRIDGE: Mr. Bartholomew, the members of this committee are faced with the knowledge that all the witnesses who support the treaty are employees of the federal or provincial governments, or consultants engaged by those governments or the British Columbia Hydro and Power Authority. Do you know the names of any other individuals who are independently interested who have expressed opinions similar to that expressed by you or General McNaughton regarding the present treaty?

Mr. BARTHOLOMEW: Several engineers working with the hydro people have congratulated me in respect of what I was doing and wished me success, indicating that they themselves could make a contribution to our discussions but because of the jobs they hold they could not do so for fear of losing those jobs. Obviously I cannot give you their names and you will have to accept my statement in this regard.

Mr. HERRIDGE: Are you aware of any engineers connected with the University of British Columbia who have voiced this opinion to which I have referred?

The CHAIRMAN: Mr. Herridge, I think we all must be extremely responsible in this regard. I think we should realize that the witness is being asked to appear before this committee to present his own opinions and should be questioned in respect of those opinions. I think this present witness offered his services rather than being requested to attend.

Mr. HERRIDGE: This witness was invited by this committee to attend, Mr. Chairman.

The CHAIRMAN: Thank you for making that correction. This witness has come before this committee prepared to place his opinions on record and subject himself to examination. I think it would be wrong to accept hearsay evidence particularly from undisclosed sources.

Mr. HERRIDGE: I will deal with one name.

Now, Mr. Bartholomew, I have a copy of a letter written by Mr. E. W. Bowness of Calgary, who is a professional engineer, to Mr. John R. Heron, The Royal Bank of Canada, Montreal, Quebec. He says:

Engineering interests in the prairie provinces and, to a lesser extent in Ontario, became suspicious and concerned that an international "give-away" was likely when General McNaughton was "elbowed out of the picture" and the politicians took over.

Mr. TURNER: On a point of order, Mr. Chairman, before Mr. Herridge reads the letter—

Mr. HERRIDGE: I am reading one paragraph.

Mr. TURNER: Perhaps Mr. Herridge would be good enough to let us know who is the author of the letter.

Mr. HERRIDGE: The author is Mr. E. W. Bowness.

Mr. TURNER: Who is E. W. Bowness?

Mr. HERRIDGE: That is what I am going to find out in a moment or two.

The CHAIRMAN: Mr. Herridge, I am certainly anxious not to limit the deliberations of this committee unduly. I do not want to be restrictive as a chairman, but I do want to be guided by the committee at large as to what is appropriate in these circumstances, because we have run into this business again and again when, in the guise of a question, evidence has been introduced.

Mr. HERRIDGE: I will ask my question, then, Mr. Chairman.

Mr. Bartholomew, are you familiar with Mr. Bowness and his qualifications?

Mr. BARTHOLOMEW: Yes. When you asked me the question about another engineer I had completely forgotten. I have had a number of sessions with Mr. Bowness. He was chief engineer and general manager for Canadian Utilities at

Calgary. He is now retired and he has, with me, expressed grave concern regarding what we are apparently in danger of doing with the Columbia river treaty. Mr. Bowness—I regret, sir, that this hearsay—and I do have exactly the same opinions.

Mr. GROOS: May I ask a supplementary question?

The CHAIRMAN: Mr. Groos.

Mr. GROOS: When did you have these discussions with Mr. Bowness? Was it before the protocol?

Mr. BARTHOLOMEW: Yes. I have not seen Mr. Bowness since the protocol came out. I think it was in about October or November of last year that we met and had lunch together in Vancouver.

Mr. TURNER: Mr. Bartholomew, has Mr. Bowness made any specific study of this problem?

Mr. BARTHOLOMEW: I would not say that Mr. Bowness had made the same amount of study as I have made, no.

Mr. TURNER: Less than 200 hours?

Mr. BARTHOLOMEW: I do not know. I have spent thousands of hours studying this, but just 200 hours in trying to assemble some of the information I had on file. However, I have at least two or three thousand hours behind me in my studies of the Columbia river since 1957-1958.

Mr. PUGH: What is the age of Mr. Bowness?

Mr. BARTHOLOMEW: I suppose Ernie Bowness is 67, 68, 69 or perhaps even 70; I am not quite sure.

Mr. HERRIDGE: Mr. Bartholomew, are you familiar with the circumstances surrounding the letter written by the Vancouver board of trade on March 23, 1964, to the Hon. Paul Martin?

Mr. BARTHOLOMEW: Yes. I was the one who succeeded in getting that letter written. It was prepared by the engineering committee of the board of trade and it was sent to Mr. Williston and to the Hon. Paul Martin. The minister was good enough to reply; he replied to the board of trade on April 8, 1964.

I had a mimeographed copy of the letter which the board of trade sent out to the council and members of the engineering committee responding to the letter which we had sent to Mr. Martin.

Mr. TURNER: May I ask if this letter was submitted to the whole membership of the board of trade before it was sent to Mr. Martin?

Mr. BARTHOLOMEW: Yes. The engineering committee cannot do a thing without doing that. If we could, we would have had resolutions out that would have raised the House of Commons.

Mr. HERRIDGE: Go ahead, Mr. Bartholomew.

Mr. BARTHOLOMEW: What do you want me to do? Shall I read the letter?

The CHAIRMAN: Perhaps you would answer the question.

Mr. BARTHOLOMEW: I know it; I have it. Am I to read you the contents and the reply?

Mr. HERRIDGE: I would like to know the circumstances surrounding it, Mr. Bartholomew.

Mr. BARTHOLOMEW: When the protocol first came up the engineering committee gave it preliminary consideration and we advised the council that the payment of \$274 million—or whatever it was—averted an economic disaster under threat of which Canada was sitting until that time. We told the council that we had not had an opportunity to appraise the rest of the protocol and we promised to undertake further studies and advise council.

The further studies which were made were discussed with the committee of the council, and again we were unable to get the council to be as positive and definite as was the engineering committee, but they did write a letter to the government members suggesting the following.

Mr. TURNER: Who was on the engineering committee? Who participated in the preparation of that letter?

Mr. BARTHOLOMEW: There was Len Stacey, myself, Col. Letson, Professor Muir, and M. A. Thomas who was the chairman; those are the members as nearly as I can remember. I think you know them very well.

Mr. TURNER: Did you prepare the draft of the letter?

Mr. BARTHOLOMEW: No, they will not let me although I would like to. They think I am too violent.

Mr. TURNER: Were you the prime impetus of the letter?

Mr. BARTHOLOMEW: I brought the matter before the engineering committee of the board of trade and they took it up—and they rather held me down.

Mr. STEWART: Mr. Chairman, are we to understand from this letter, concerning which we have heard very little, that this condemns the protocol? Are we to understand that this letter is a condemnation of the treaty and the protocol?

Mr. BARTHOLOMEW: I would not say that, no. I would be very glad to read it to you if you would like to have it read.

Mr. LEBOE: May I ask a supplementary question?

How many members of the engineering committee were engineers of repute?

Mr. BARTHOLOMEW: They were all professional engineers and there was Dr. Smith, the head of the research council at B.C. They were all professional engineers.

Mr. LEBOE: I have one more question.

Were the members hydraulic engineers? Was this their specialty? Were they in this field?

Mr. BARTHOLOMEW: They covered various fields of engineering. Perhaps if you heard the letter you might understand how a non-specialist group came to write it.

Mr. TURNER: Are they all still in active practice? I am referring to the members of your engineering committee.

Mr. BARTHOLOMEW: Very much so; every one of them.

Mr. KINDT: I suggest, Mr. Chairman, that we go on and hear this letter. We have asked enough questions about it.

Mr. BARTHOLOMEW: This letter is written by the Vancouver Board of Trade to the Hon. Paul Martin, and it is signed by G. M. Morris, who is the assistant general manager. It says:

Dear Mr. Martin: Re Columbia river treaty and protocol.

The Vancouver board of trade has had a continuing interest in the Columbia river negotiations and recently expressed gratification with the significant improvements made to the treaty by the protocol. As evidence of the board's continued interest, its subcommittee on power has now reviewed the protocol more closely. This committee is satisfied that the protocol has corrected many of the inadequacies—

I wanted to strike out the "many".

—of the original treaty—

Mr. TURNER: The letter speaks for itself, I suggest.

Mr. BARTHOLOMEW: I continue:

—but at the same time their examination has raised a number of questions which we believe should be satisfactorily resolved.

We emphasize that this committee study was not exhaustive—it could not be within the limits of the board's resources—but it has been made by individuals with some competence in the field. Their observations in the attached critique are exemplary of a number of sections of the treaty and protocol which should be fully clarified and defined in the interest of avoiding different interpretations and future misunderstandings between the signatories to the treaty.

Mr. DAVIS: This is a request for clarification?

Mr. BARTHOLOMEW: Yes. Let me finish it.

These comments are made in the spirit of helpful co-operation and we would appreciate your observations on the particular matters in the critique or any information related to the modification or clarification of other clauses in the treaty and the protocol.

They attached to this another rather toned down comment which we prepared. This is the critique that was prepared by the engineering committee of the board of trade:

Article (5)

XII (5) of treaty states that the United States will modify the Libby dam operation at Canadian request if not disadvantageous to the United States. Inasmuch as it is probable that most requests by Canada to vary control which the United States would normally exercise would be to the disadvantage of the United States, the co-operation proposed under this article would appear to have a negligible benefit to Canada. For the article to be meaningful it should encompass a statement setting out specifically and quantitatively the amount of benefits to Canada in terms of incremental firm power generation over and above that which is now available.

Article (6)

Clarification is required in regard to the classification of water for "consumptive use", to protect Canada's rights in regard to the diversion of Kootenay river water. It is most probable that if Canada should elect to divert Kootenay water to the prairies, for consumptive use, some power would be feasibly developed through the fall of the water down the eastern slope of the Rocky mountains. Such incidental power development should not be used as a valid argument to disqualify the classification of the diverted water for consumptive purposes. Further, if some of the water so diverted should remain in the Saskatchewan river when it passes through the power turbine at Outlook dam, this should not prevent the water being classified as for consumptive use.

Article 7 (3)

This article has the effect of enlarging the size of the American system as defined in the treaty and which is to be considered when deciding the program of water release from Canadian storage facilities for optimum power generation.

Its effect could compel Canada to make water releases which would further reduce the optimum Canadian power generation at Mica creek and sites downstream therefrom.

In this regard the report of sir Alexander Gibb and Merz & McLellan to the British Columbia energy board pointed out, that the United States system as defined in the treaty, the requirements for the control of water release under the treaty terms would reduce the firm power capability of Mica site by 150,000 kw. below that with control exercise for optimum generation on site. The change described in this part of the protocol will make this condition more unfavourable.

Mind you, this is the engineering report to the council of the board of trade. This is not an official statement that is endorsed by the council, but the council sent their letter with this memo from the engineering committee. I do not want you to think this is a matter of board of trade policy. I must be quite fair and clear on that.

Mr. TURNER: Is the assistant general manager, who signed that letter, a paid employee of the board? He is not a member of the council?

Mr. BARTHOLOMEW: No, no; he just does what he is told.

Article 7 (1):

This article states that "as the downstream benefits credited to Canadian storage decreases with time the storage required to be operated by Canada will be that required to produce those benefits". Under this article the United States could demand that any or all of the remaining credit storage be released at a far greater rate for short periods than Canada can use it for the generation of power. This water would then flow over the spillways and water required later by Canada for generation would be lost.

That is a memorandum which we sent to the council and the council, not being competent to pass an opinion on it, merely sent it to the Hon. Paul Martin; and then we have Mr. Martin's reply.

Mr. TURNER: As the council merely sent the letter without comment—

Mr. LEBOE: Did they?

Mr. BARTHOLOMEW: No, no.

Mr. TURNER: —I would like to reserve the right to file the covering letter and the reply to that letter when we obtain copies.

The CHAIRMAN: I think that is fair.

Mr. HERRIDGE: What does Mr. Turner mean by the covering letter? There was a covering letter which was read.

Mr. BARTHOLOMEW: I have read it; there is nothing more than what I have read.

Mr. HERRIDGE: And you have Mr. Martin's letter there?

Mr. BARTHOLOMEW: I have Mr. Martin's answer.

Mr. HERRIDGE: Mr. Turner is anxious to have it read.

Mr. TURNER: I am anxious to have it filed.

Mr. BARTHOLOMEW: May I comment as I read it?

Mr. HERRIDGE: Just read it and comment afterwards.

Mr. BARTHOLOMEW: Very well. This was forwarded by the Hon. Paul Martin to the Vancouver board of trade on April 8, 1964. I must advise you that I telephoned the secretary of the board of trade this morning to ascertain the time at which the letter was dated because on my copy there is no date. I telephoned Peter Watkinson and he gave me the date of Mr. Martin's letter.

The CHAIRMAN: Thank you.

Mr. BARTHOLOMEW: This is headed "Comments on 'A Critique on the Columbia river treaty and protocol' by the subcommittee on power, Vancouver board of trade". This is what it says:

Article 5:

Whereas article XII of the treaty required Canada to request the United States to vary its operation of Libby to assist Canadian generation downstream, paragraph 5 of the protocol provides a commitment on the part of the United States that they shall "co-operate on a continuing basis" to co-ordinate the operation of Libby with Canadian plants.

Do you want any comment, or shall I read the whole thing?

Mr. HERRIDGE: I think it was understood that you should read it.

Mr. BARTHOLOMEW: I continue:

Under both the treaty and protocol, the United States has the right to deviate from such a co-ordinated operation to protect its own generating potential. This is understandable in a situation where Canada receives the whole of the downstream power and flood control benefits occurring in Canada from Libby without having to pay anything towards the cost of Libby except for the limited part of the reservoir in Canada. However, in spite of this freedom on the part of the United States entity, the commitment made to co-ordinate should be of value to Canada. The United States system is continually increasing in size, and therefore becoming more flexible in its operation (this is a major reason for the decreasing nature of Canada's downstream benefits—a decreasing need on the part of the United States for a specific operation of a Canadian storage). As the system becomes more flexible, it is less likely that co-ordinated operations of Libby will reduce the potential benefits to the United States. This co-ordination will not have to be on a daily or weekly basis, only seasonal, as Kootenay lake can re-regulate any daily or weekly flow fluctuations.

You may be interested in knowing that studies run for an average year of stream flow and including consideration of the treaty restriction on Libby operation have indicated in a limited dependence by Canadian Kootenay plants on co-ordinated operation at Libby. The normal operation at Libby will suit most of the requirements on the Canadian side.

Article (6):

The treaty will not present diversions of water by Canada for consumptive needs even if the water is used for power generation en route to this consumptive need. In this regard, you may be interested in my correspondence with premier Lloyd of Saskatchewan on the subject of diversion. A copy of this correspondence is attached.

I do not have that.

Mr. HERRIDGE: We have.

Mr. BARTHOLOMEW: It continues:

Article 7(3):

As noted above in my comment on article 5 one of the reasons our downstream benefits reduce is because the United States system becomes larger and more flexible and therefore less dependant upon Canadian storage.

While the argument has been made that the United States system, because of its size, will be in a position to dictate the best United States-Canada system operation; this is not correct. The opposite is closer to the truth. It is not the size of the system which determines the best use of the storage but the dependence of the system on that storage. Mica creek for example, is completely dependant upon a very specific type of operation of its storage to produce maximum at site power. Any deviation from this specific operation will result in a considerable reduction in power at Mica as well as the downstream plants of Downie creek and Revelstoke canyon which are also completely dependant upon that one source of storage. Grand Coulee, however, will have seven storages from which to draw (nine counting Arrow lakes and Duncan) before it is dependant upon storage from Mica. This hydraulic flexibility plus flexibility through electrical co-ordination with the whole Pacific northwest area and now (through article 7(3) with any co-ordinated system, means that the United States system can adjust readily and with very little reduction in power to a change in Canadian storage operation.

Studies which will be presented at the external affairs hearings on this subject will be of interest to you.

With regard to the statement made in your attachment concerning the Sir Alexander Gibb report, I would like to bring to your attention that the 150,000 kw of peaking capacity and 25,000 kw of average energy quoted in the Gibb report was the extent of conflict between operation for maximum Canadian power and maximum downstream benefits. Canada does not have to operate for maximum downstream benefits but rather for maximum system power, United States plus Canadian. The Gibb report erred when they suggested Canada would have to make up the reduction in downstream benefits noted.

One further point is that any penalty to Canada brought about by conflict in operation would not reduce Mica's at site potential but would be deducted from Canada's share of the downstream benefits. Even if the penalties suggested were valid, and I assure you they are not, the reduction in our downstream capacity benefits in 1975 would be about 10 per cent and 3 per cent in our capacity and energy respectively at that same point in time.

Article 7(1):

The suggestion made in your comment in this article is not valid as it would result in losses of power at Mica, Downie creek and Revelstoke canyon which would not be compensated for by increased power in the United States system when alternative methods of operating that system are considered. The intent of the treaty that maximum United States-Canadian generation be achieved would therefore not be met and the operation pattern would be invalid.

Mr. HERRIDGE: Now, what are your comments?

Mr. TURNER: Have you got the covering letter that the minister wrote?

Mr. BARTHOLOMEW: I think this is the only letter we have.

Mr. TURNER: May I read the covering letter because I think it is relevant to this? It is short, only about three paragraphs.

The CHAIRMAN: Perhaps you will be good enough to give it to the witness and have him read it so that the record is complete at this time.

Mr. TURNER: Very well.

Mr. BARTHOLOMEW: The covering letter reads as follows:

Ottawa, April 8, 1964.

Dear Mr. Morris:

Thank you for your letter of March 23 which expressed your general agreement with the improvement brought about in the Columbia river treaty by the recently signed protocol. It is very gratifying to have this acknowledgment of the success of the intensive negotiations which took place. I am attaching for your information a copy of a book entitled "The Columbia River Treaty and Protocol—A Presentation". I believe this book clearly sets out the case for the treaty and protocol and will be of interest to you.

Your letter asked for my observations on four points which your subcommittee on power felt still required some further clarification. While points like those mentioned will be given detailed explanation during the hearings of the standing committee on external affairs which commenced on the 7th of this month, perhaps the very brief comments which are attached may prove to be of interest.

May I use this opportunity to express my best wishes to Mr. Benson on his election as the new president of your board of trade.

Yours sincerely,
Paul Martin

G. M. Morris Esquire,
Assistant General Manager,
Vancouver Board of Trade,
1164 Melville Street,
Vancouver, British Columbia.

Mr. TURNER: Do I understand that this blue book or presentation was sent in response to that letter?

Mr. BARTHOLOMEW: I cannot say, sir.

Mr. TURNER: You did not have a chance to read it since April 8?

Mr. BARTHOLOMEW: No, I got a copy of this book two or three days ago. It is pretty overwhelming, you know.

Mr. HERRIDGE: What were your comments on Mr. Martin's comments?

Mr. LEBOE: Mr. Chairman, it is now three minutes to six and I think this is a pretty good place to break off if we are going to break off for six o'clock.

The CHAIRMAN: I have seven members who wish to ask questions. Perhaps we might finish the questions.

Mr. BREWIN: I propose that we now adjourn for diverted and consumptive purposes.

The CHAIRMAN: Is that agreeable to the committee? Shall we reassemble at eight o'clock?

Mr. TURNER: The steering committee is to meet at eight o'clock.

Mr. HERRIDGE: Why not make it eight thirty on account of the steering committee?

The CHAIRMAN: Is there any purpose in having a steering committee meeting at this stage?

Mr. HERRIDGE: Some of us have certain matters to bring to the attention of the steering committee.

The CHAIRMAN: I wonder. Perhaps in the light of the fact that we have not finished with Mr. Bartholomew we might just continue at eight o'clock, and have the steering committee meet after then.

Mr. KINDT: I think we have proceeded to a point in our committee where the work of the steering committee should be discussed in this committee so that we can all get a shot at it. It seems to me that there are matters coming up about which certain of us would like to ask questions, and I think it would clarify a lot of things if we could all participate in the subjects which will be brought before the steering committee at eight o'clock. I agree with the Chair that the steering committee should meet at eight o'clock, but I suggest it would be irrelevant at this time unless we all participate in it.

Mr. TURNER: First of all, the deliberations of the steering committee have to be reviewed by this committee of the whole. The purpose of the steering committee is to try to expedite the order of business of the committee, subject always to the approval and confirmation of the committee as a whole.

Secondly, the chief purpose of your steering committee is to try to schedule the hearings in advance so that we do not have jam-ups or conflicts. Moreover, Miss Ballentine wants to draw the attention of the committee to two or three things.

The CHAIRMAN: We have already scheduled as our witnesses tomorrow Mr. R. S. Anderson, representing the Consolidated Mining and Smelting Company of Canada Limited, and Dr. Arthur Casagrande, professor of geology at Harvard University. Moreover, I believe that our secretary already has one or two problems resulting from this with respect to other witnesses. And may I point out to you that the scheduling as it appears at this time, unless we receive other instructions, indicates a very heavy agenda for this committee.

Indeed, it may be that we will be meeting not shorter hours but longer hours unless the committee decides otherwise.

Mr. HERRIDGE: That is what we want to discuss. They are being crowded in too fast. We may have to rearrange the schedule.

Mr. TURNER: Perhaps the steering committee then should meet this evening before the committee meets in order to resolve this matter.

The CHAIRMAN: Mr. Herridge has indicated there are some people who wish to appear. We have been in touch with the United Electrical, Radio and Machine Workers of America and the International Union of Mine, Mill and Smelter Workers who are scheduled for Friday, May 1. However, each of these two unions now is asking for the full period; they are asking not to be grouped together. The United Electrical, Radio and Machine Workers of America do not want to meet with the International Union of Mine, Mill and Smelter Workers. Similarly, on Monday, May 4, we have the British Columbia Federation of Labour. They cannot appear on that date. For Thursday, May 7, we have scheduled R. Dean of Rossland, British Columbia and John Hayward, representing the Columbia river for Canada Committee, Vancouver.

Mr. HERRIDGE: They will each require a day.

The CHAIRMAN: I am just asking the committee to realize what this involves. The hon. Davie Fulton is scheduled for Monday and Tuesday, May 11 and May 12, and the province of Saskatchewan for Thursday, May 14.

I would like the members of the committee as a whole to know what the burden is which is imposed on the steering committee before they bring in a report. We already have a conflict of ideas. Mr. Cameron and Mr. Herridge both have indicated at different times that the hearings are coming too frequently, and yet the witnesses whom they have suggested do not want to appear together. This means more extended hearings.

Mr. HERRIDGE: They have separate briefs.

Mr. DAVIS: This would seem to be a matter for the steering committee to resolve. We have Mr. Bartholomew before us and I think we should continue with him this evening.

The CHAIRMAN: I still have the names of several members of the committee who wish to ask questions of Mr. Bartholomew.

Mr. BYRNE: I move that we adjourn to reconvene at eight o'clock this evening.

Mr. RYAN: I second the motion.

The CHAIRMAN: You understand there is a steering committee meeting scheduled. Would 8.30 be acceptable?

Mr. BYRNE: I said eight o'clock.

Mr. KINDT: When will we have an opportunity to discuss what is considered by the steering committee? I have some questions to raise.

The CHAIRMAN: I have always brought before the committee a report of the deliberations of the steering committee. A motion has been put, seconded, and carried by the committee at large. If at any point the steering committee is giving directions which are unacceptable to the committee as a whole, I think this should be brought up at that time.

Mr. KINDT: It might take the whole evening.

The CHAIRMAN: It may very well.

Mr. TURNER: Could we meet at 8.30?

Mr. RYAN: I would oppose 8.30 p.m. I think we need every bit of time we can command to give to this present witness this evening.

The CHAIRMAN: Is it agreeable that the steering committee meet at 7.30 p.m. and the meeting as a whole meet as scheduled at eight o'clock.

Mr. BYRNE: My motion is that we adjourn to reconvene at eight o'clock, and the motion is not debatable.

The CHAIRMAN: The motion is seconded by Mr. Cadieux. Is that agreeable to everybody?

Motion agreed to, and the committee adjourned to eight o'clock this evening.

EVENING SITTING

MONDAY, April 27, 1964.

The CHAIRMAN: Gentlemen, I see a quorum.

Your subcommittee on agenda and procedure met at 7.30 p.m. this date and agreed to recommend as follows: (See *Minutes*)

May I have a motion for the adoption of this report.

Mr. DAVIS: I so move.

Mr. HERRIDGE: Mr. Chairman, in that report have you mentioned Mr. Deane?

The CHAIRMAN: No, I did not. I am advised we already have invited Mr. Deane and he has accepted for May 7. Mr. Herridge, that is not included in the report because it is not new.

Mr. TURNER: Mr. Chairman, I understand these are just the new dates as confirmed.

The CHAIRMAN: This represents a correction of previous commitments.

Mr. KINDT: Mr. Chairman, is this for discussion?

The CHAIRMAN: There will be discussions. The adoption of the report has been moved by Mr. Davis; have we a seconder?

Mr. PATTERSON: I second the motion.

Mr. HERRIDGE: Mr. Chairman, I agree with this report as long as it is understood adjustments will be made if required because of unexpected developments, thereby giving the witnesses more time to attend.

Mr. BYRNE: We seem to have been following that pattern.

Mr. KINDT: Mr. Chairman, I think probably a little bit of discussion on this would be a good idea. In my opinion, there has been too much salesmanship involved in respect of many of the reports which have come before this committee. What we want in this committee is to see both sides of the coin, and also to see the over-all plan of watershed and how the parts fit together with their proper correlation and evaluation of those parts, both technically and legally. Also, we want to do this in such a way that it will enable us as members of this committee to evaluate and to see if the interests of Canadians are protected. Up until now we have been getting these things piecemeal. I think most of the work in Canada was done on a piecemeal basis. At least, that is the impression I get.

The CHAIRMAN: Mr. Kindt, are you criticizing the order or the quality of the presentation? Just what are you criticizing?

Mr. KINDT: I am criticizing the whole thing.

The CHAIRMAN: But what relevance has that to the motion that we accept the sixth report of the subcommittee on agenda and procedure.

Mr. KINDT: In this way, Mr. Chairman; as a steering committee, a meeting was held, as a result of which this report was tabled, and I am discussing the procedure under which this committee is functioning. Now, I blame you if you attack me in respect of how this committee is functioning. I do not think this committee is functioning properly at the present time and, as you are the Chairman, you are responsible.

The CHAIRMAN: Mr. Kindt, would you care to make an amendment to the motion?

Mr. KINDT: I want to discuss it first and I want to hear some other discussions on it.

The CHAIRMAN: I would be very happy if you would bring your comments to bear on the sixth report of the subcommittee on agenda and procedure.

Mr. KINDT: I made the suggestion that we discuss these things at this time.

The CHAIRMAN: Do you take any objection to what already has been agreed upon by the steering committee and which now has a motion for its adoption?

Mr. KINDT: Yes. I am disagreeing with it right now. I am saying the reports that have been tabled are too much on the salesmanship side and do not show both sides of the coin.

The CHAIRMAN: Do you understand that every name I have read tonight in paragraphs one to six inclusive represent people who have asked to be here with the exception of General McNaughton, whom we have invited. However, five out of the six have asked to be here to speak against the treaty. Do you appreciate that, Mr. Kindt?

Mr. KINDT: I have not made any analysis of that. However, that is the information we wish to know. Up until now we have had it all one sided. What I am interested in seeing is that we proceed in a proper manner.

The CHAIRMAN: We have just had four days with General McNaughton and one with Mr. Bartholomew.

Mr. KINDT: Now, never mind telling me how to conduct things. If you would sit down I will continue discussing this matter. You are not convincing me about anything.

Mr. BYRNE: On a point of order, Mr. Chairman—

Mr. KINDT: Now, I did not interrupt you and I do not think you should interrupt me.

The CHAIRMAN: I would like to bring your remarks to bear on the point in issue.

Mr. BYRNE: Mr. Chairman, any time Mr. Kindt considers I am out of order he can bring it to the attention of the Chair. I affirm what Mr. Kindt is saying is out of order and bears no relevance whatever to the report of the committee.

Mr. KINDT: I put questions before the adjournment, Mr. Chairman, in respect of how this committee was being run. I think that witnesses who are brought before the committee should be a question of discussion amongst members of the committee, and what I am trying to do is discuss that matter. However, you are trying to interrupt me and say I have not the right.

The CHAIRMAN: Will you carry on, Mr. Kindt, and bring your remarks to any point you wish. You may make any motion you wish at this time.

Mr. KINDT: I am discussing the motion which is before the committee.

Mr. PATTERSON: Question.

Mr. KINDT: Mr. Chairman, my contention is that all you are doing here is not getting at the meat in the coconut.

The CHAIRMAN: Would you suggest how we get at the meat in the coconut?

Mr. BYRNE: It is a lovely bunch of coconuts.

Mr. KINDT: I would ask that you bring in someone who knows something about watershed development and then correlate this whole thing. This has been a question of the blind leading the blind from the Chairman down to the whole steering committee.

The CHAIRMAN: Mr. Kindt, your own party is represented by two members on the steering committee which consists of seven. Have you any complaint in this regard?

Mr. KINDT: That does not make any difference; my statement is still true.

Mr. BYRNE: Mr. Chairman, I move an amendment to the motion.

I move that Mr. Kindt be asked to attend the next meeting of the steering committee, not as a voting member but in order to allow him to discuss these matters with the steering committee.

The CHAIRMAN: Is anyone prepared to second that motion?

Mr. BYRNE: In that way Mr. Kindt would be able to bring all these matters before the committee.

Mr. DINSDALE: I will second that motion, Mr. Chairman.

Mr. KINDT: I am not asking to be on the steering committee.

Mr. BYRNE: I was not suggesting that. I suggested that Mr. Kindt be invited to attend the committee to give his point of view. In this way, when the steering committee make their choice, they first will have had the benefit of Mr. Kindt's greater knowledge.

Mr. DINSDALE: I am seconding the motion, Mr. Chairman. I am not a regular member of the steering committee, as you know. However, I have had the opportunity of representing my party on the steering committee in the absence of the regular members. It was my impression that the members of the steering committee, including yourself as Chairman, are looking for suggestions to make the hearings as representative and as broad as possible, and if Mr. Kindt has a contribution to make in this respect I think he should have the privilege of being heard by the steering committee, at which time it can be considered in detail.

The CHAIRMAN: Gentlemen, you have heard the amendment. It has been duly moved and seconded.

Mr. BREWIN: If I may interrupt, Mr. Chairman, in respect of the amendment I assume that any member of this committee, not being a member of the steering committee, has suggestions and criticisms in respect of the order of business and so on which the steering committee would welcome, so in this context I do not think that Mr. Kindt is a special case.

Mr. KINDT: Not on your life.

Mr. BREWIN: I am not in favour of the amendment.

The CHAIRMAN: You have heard the amendment; all those in favour?

Mr. KINDT: I do not wish to be singled out as any special case.

Mr. RYAN: I think he should be singled out as a special case.

Mr. BYRNE: I would be happy to withdraw the motion if Mr. Kindt understands that without prejudice he may attend the meetings at any time to try to determine how best we can obtain witnesses. However, I do not think this is the proper place for a member to tell the committee what the witnesses should be telling us. We have only asked those who are with the government to make their representations. After all, these are the ones who have the responsibility for this treaty. If there are any other people who wish to attend the committee to take exception to or to argue against that principle that is not up to the committee to determine. We have invited those individuals who we believe to be well informed critics to come before us. We have received no objections in respect of inviting others who are reputed to be well informed.

Mr. DEACHMAN: Mr. Chairman, on a point of order—

Mr. BYRNE: I do not see how this discussion is relevant.

Mr. DEACHMAN: Mr. Chairman, on a point of order, we have a motion before us and we have an amendment to that motion. Mr. Byrne is now asking that his amendment be withdrawn. I will not consent to the withdrawal of his amendment. I would like to see the amendment voted upon.

Mr. RYAN: I should like to speak on the amendment as well, Mr. Chairman. I support the amendment vigorously if it will have the effect of preventing Dr. Kindt from continuing this undeserved attack upon the Chairman.

Mr. KINDT: Just one moment, please. I take serious objection to that statement made by my hon. friend. After all I am just one member of this committee and I want to see that the proper evidence is brought before this committee so that we can make a reasonable determination. I am willing to make suggestions and offer my considerations if and when I am given an opportunity to do so.

Mr. DEACHMAN: Mr. Chairman, on a point of order—

Mr. KINDT: Just one moment, I am speaking.

Mr. DEACHMAN: Mr. Chairman, on a point of order, my point of order simply is that there is an amendment before this committee and I should like to know whether Dr. Kindt is discussing the amendment to the motion.

Mr. KINDT: That is exactly what I am doing.

Mr. RYAN: He is telling us the story of his past life.

Mr. KINDT: The amendment suggests that I be singled out to attend the meetings of the steering committee. I feel that the bias which has been evident up to this time should be eliminated, and must be eliminated if we are going to attain the proper results. I am trying to suggest to the member of this committee that we now have a witness before us giving evidence, and we can all either support or reject the recommendations of the steering committee after we have concluded our deliberations. Until the present time

do not feel we have heard the type of witness we should hear. Some of the witnesses have perhaps been of the type that should be called, but from the very beginning of our meetings we should have heard from someone who is able to explain the broad relationships of this treaty and give us the figures necessary to an intelligent discussion. I suggest that the amendment is not in order and that any member of this committee has the right to attend a meeting of the steering committee provided he is invited to attend. The amendment is not necessary.

Mr. BYRNE: Mr. Chairman, I am willing to change the amendment and invite Dr. Kindt to attend the meetings of the steering committee.

The CHAIRMAN: We will now vote on the amendment.

All those in favour of the amendment signify in the usual way.

Mr. KINDT: I do not think the amendment should be necessary, Mr. Chairman.

The CHAIRMAN: The amendment to the motion suggests that Dr. Kindt be invited to be present at the meetings of the steering committee.

Mr. KINDT: Will you invite me?

Mr. BREWIN: Mr. Chairman, this amendment is discriminatory.

The CHAIRMAN: All those opposed to the amendment please signify?

Mr. BREWIN: Mr. Chairman, will the results of passing this motion mean that whenever a member of this committee raises an objection he will be given a special invitation to attend the meetings of the steering committee?

The CHAIRMAN: Mr. Brewin, I think it has been indicated that anyone has the right to attend the meeting of the steering committee.

I declare the motion carried.

Mr. KINDT: I call for a standing vote, Mr. Chairman.

The CHAIRMAN: The amendment is that we offer Mr. Kindt a special invitation to attend meetings of steering committees.

Mr. KINDT: I call for a recorded vote, Mr. Chairman.

Amendment (Mr. Byrne) agreed to: Yeas, 11; nays, 4.

Mr. DINSDALE: Mr. Chairman, by way of clarification, I should indicate that I presume the same privilege of courtesy would be extended to every member of this committee.

The CHAIRMAN: Mr. Dinsdale it was announced that we were most anxious to have all members assist the steering committee by making suggestions at any time. The steering committee meets in my office at those times which are indicated. Each political party is represented on that steering committee. In addition to the Chairman and Vice Chairman the members of that committee consist of Mr. Fleming (Okanagan-Revelstoke), from the Conservative party; Mr. Herridge from the New Democratic party; Mr. Patterson from the Social Credit party; Mr. Turner from the Liberal party; and Mr. Langlois from the Ralliement des Cr ditistes. I am sure that the members of the steering committee will welcome any suggestion from any member of the main committee.

I should simply like to state at this time that all decisions of the steering committee, to my knowledge, have been unanimous, and the recommendations that were brought forward to this committee have been agreed to by members of the steering committee. Those things which have been suggested by the members of the steering committee in respect of the witnesses to be called and the dates they should appear have been decided upon by the main committee.

Mr. KINDT: Mr. Chairman, may I ask you when the next meeting is to be held?

The CHAIRMAN: Mr. Kindt, I am sorry I am not able to tell you the date of the next steering committee meeting in advance but believe me, because you are being accorded this special invitation, I am quite anxious to meet as soon as possible.

Mr. KINDT: Will you send me a notice of the meeting?

The CHAIRMAN: I certainly shall.

Mr. BREWIN: Mr. Kindt will have a voice at that meeting but will not be allowed to vote.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I should like to respectfully suggest that had you made that information known at the beginning we might well have been spared the antics that have taken place.

The CHAIRMAN: Thank you Mr. Cameron.

I should now like to have a vote on the main motion to accept the sixth report of the subcommittee regarding the change in procedure. All those in favour please indicate in the normal fashion. All those opposed please indicate?

I declare the motion carried unanimously.

We will now continue our questioning of Mr. Bartholomew. I think Mr. Herridge was asking questions at the adjournment.

Mr. HERRIDGE: Mr. Chairman, Mr. Bartholomew wishes to make certain comments on the letter to which he referred before the adjournment, following which I shall ask two or three questions.

Mr. BARTHOLOMEW: Mr. Chairman, before we adjourned for dinner read the comments by Mr. Martin in regard to a critique on the Columbi river treaty and protocol made by a special committee of the Vancouver board of trade. I should at this time like to make one or two comments about this commentary which the minister sent to that board of trade. In a general sense this commentary of the minister exemplifies the weaknesses throughout the treaty.

The commentary in part reads as follows:

Whereas Article XII of the treaty required Canada to request the United States to vary its operation of Libby to assist Canadian generation downstream, paragraph 5 of the protocol provides a commitment on the part of the United States that they shall 'co-operate on a continuing basis' to coordinate the operation of Libby with Canadian plants.

Now, this is what the protocol says:

The entities shall, pursuant to article XIV(2) (a) of the treaty.

That is omitted from the minister's quotation. So we now have to refer back to article XIV(2) (a) of the treaty. This is a protocol reference.

In addition to the powers and duties dealt with specifically elsewhere in the treaty the powers and duties of the entities include:

- (a) co-ordination of plans and an exchange of information relating to facilities to be used in producing and obtaining the benefits contemplated by the treaty.

I am looking for a quotation where it says that the United States will make such modifications provided it is not to its disadvantage. I am referring to article XII.

If the United States of America determines that the variation would not be to its disadvantage it shall vary the operation accordingly.

The United States had precisely the same privileges and rights in controlling the Kootenay water in the protocol as it had in the treaty. There is no improvement there whatsoever. I feel this is a glaring case where we have uncertainty. Why did the protocol not say that the United States will release water from the Libby dam in monthly periods to create in Canada an increment of firm power benefits in the lower Kootenay river? That is missing and we have to assume it is there. That is my first comment on the minister's statement.

The minister then writes:

Under both the treaty and the protocol the United States has the right to deviate from such a co-ordinated operation to protect its own generating potential.

If they do that it can only be to Canada's disadvantage. You cannot afford to install and build a plant for furnishing firm power on the lower Kootenay river unless you can be assured of a river which will support a firm power load.

This is understandable in a situation where Canada receives the whole of the downstream power and flood control benefits occurring in Canada from Libby without having to pay anything towards the cost of Libby except for the limited part of the reservoir in Canada.

I can say in regard to that that in 1959 Mr. Williston made a speech in the house in Victoria in which he stated that the Americans had consented to discuss the payment to Canada for part of the benefits created at Libby. The negotiations in this direction were suspended at that time because the two countries were going to engage in discussions that might lead to a treaty. Canada has changed its opinions since then.

Mr. MACDONALD: I have a supplementary question. Is Mr. Bartholomew aware that Montreal Engineering, in its 1964 study, had determined that in fact the provisions will permit the production of 200,000 additional kilowatt years on the West Kootenay plant?

Mr. BARTHOLOMEW: I know there will be 200,000 kilowatt years.

Mr. MACDONALD: Of firm power.

Mr. BARTHOLOMEW: Let us put it into the treaty. If it is to be there why leave it up in the air, why not assert it?

Mr. MACDONALD: They have determined that in fact it is assured.

Mr. BARTHOLOMEW: Personally I have no confidence in their assurance. They cannot compel the United States to make their releases to suit the generation of firm power below Kootenay.

Mr. MACDONALD: Their opinion is that according to the protocol this will be the result. You are inviting us to put your opinion over that of Montreal Engineering.

Mr. BARTHOLOMEW: I am asking you to take the wording of the treaty, not to guess how it is going to turn out.

Mr. MACDONALD: I am asking you to take the treaty within the facts, and from the studies made by Montreal Engineering this in fact will be produced.

Mr. BARTHOLOMEW: I cannot agree that Montreal Engineering could guarantee that the United States will release 200,000 kilowatts of average energy monthly to create firm power. Would they give you a bond to that effect?

Mr. MACDONALD: They have given their professional opinion, which to an engineer is as good as a bond.

Mr. BARTHOLOMEW: I am afraid opinions in a matter of this sort are not the final answer. The final answer is that if it is going to be there, why do we not state it?

Mr. MACDONALD: It is so stated.

Mr. BARTHOLOMEW: It is not stated in the treaty.

Mr. MACDONALD: That may well be but it is what the legal officers of the crown say. You say yourself you have not had legal advice on this, so therefore you are inviting us to take the layman's interpretation of this.

Mr. BREWIN: Inviting us to read it for ourselves.

Mr. MACDONALD: We are going to have to rely on the legal interpretation. Probably neither Mr. Brewin nor myself is competent to give that.

Mr. BREWIN: Speak for yourself, Mr. Macdonald.

Mr. MACDONALD: I am afraid I touched him to the quick.

Mr. BREWIN: You have not; I just thought you can discuss your own competence and leave me out of it.

Mr. MACDONALD: I am too modest to discuss that.

Mr. RYAN: Gentlemen to the left have the divine right to interject.

The CHAIRMAN: I still have a number of questioners on my list.

Mr. BARTHOLOMEW: I would like to go through this because all the way through the minister is saying that according to the calculations that is so, and so on.

Mr. BYRNE: Mr. Martin put this evidence before the committee earlier. It seems to me that if Mr. Herridge could ask specific questions, it will expedite this hearing.

The CHAIRMAN: Yes, this would be helpful.

Mr. BYRNE: We should put specific questions.

Mr. HERRIDGE: Mr. Chairman, this matter arose as the result of a question by Mr. Turner and his insistence on certain letters being read into the record. Mr. Bartholomew agreed to comment on certain statements made by the minister, and I suggest he can do that, and do it fairly briefly.

Mr. BYRNE: With great respect, I think the questioner should put specific questions. This could be done with any witness. We could give a submission and then ask him to make comments on it right through. It is the members' duty to ask questions.

The CHAIRMAN: I have seven members of this committee who have indicated their desire to question Mr. Bartholomew after Mr. Herridge.

Mr. BREWIN: In all fairness, it so happens that this document was introduced by someone else. This witness was shown the document; he did not produce it. This document makes certain statements of opinion and the witness wishes to comment on it. Surely he should be permitted to do this, and we would save time if we did not have these interruptions.

The CHAIRMAN: Mr. Bartholomew, perhaps you could comment on this letter succinctly.

Mr. LEBOE: The witness introduced the documents.

Mr. BREWIN: He was asked to do so.

Mr. BYRNE: Who introduced this document? It was not introduced by the witness.

Mr. BREWIN: It was the request of Mr. Turner.

Mr. BYRNE: I believe Mr. Turner asked for the covering letter.

Mr. HERRIDGE: Can we not get on with the point?

The CHAIRMAN: Perhaps Mr. Bartholomew could comment succinctly and permit us to go on to the other questions.

Mr. BARTHOLOMEW: Basically, sir, these conditions in the treaty and in the protocol state what is expected. If it was the intention that these characteristics should exist, there is no reason why they could not have been so defined, and the failure to define them cannot help but rouse suspicions. I cannot tell you the whole story but you must have read in the newspapers the difficulties that arose in Mexico concerning the Colorado river. The Mexicans claimed that the United States is supplying Mexico with salt water that has been pushed out of the salt lands by Colorado fresh water, and the Mexicans claimed that this is destroying their irrigated lands to the south. I read in the papers that the Mexicans have protested and the United States have said that there is no obligation in the treaty to give fresh water. All that had to be done in that case was for the treaty to state that they should return fresh water. You and I will be dead long before this thing works out, and someone will come along here, and will say, "That is what it says", and if it suits the United States in 10 or 20 years' time to use up the Libby water in the months of December, January and February because the United States are expecting a big run-off later on, there is no reason why the United States cannot do it. This will destroy Canadian firm power in the lower Kootenay. If Canadians are going to get firm power, I say, sir, that we should have it defined.

I return again to this question of consumptive use. I do not know whether we will ever need to divert water from the Kootenay to the prairies. Heaven knows what the water situation will be in 10, 20 or 30 years' time. The condition might arise, but as the treaty reads, consumptively diverted water may not be used for power. Yet, if we do divert it, we have to use it for power. The minister says that there will be no objection to the use of consumptively diverted water for incidental power generation. The treaty does not say so, nor does the protocol. If it is going to be there, why do we not modify the protocol, and put in what we think it means?

Mr. HERRIDGE: Mr. Chairman, I would like to ask Mr. Bartholomew this question, and it covers the broader field and brings the discussion into focus—I usually do that, you know. Will you explain, Mr. Bartholomew, where the principles enunciated in the report by the International Joint Commission were deviated from in the present treaty.

Mr. BARTHOLOMEW: I have made one or two references to that. They have been deviated from in a very serious manner. For one thing, the I.J.C. report stated that consideration should be given to the difference in the nature of the loads of the two countries in determining downstream benefits. The loads of the two countries are treated exactly on a par. In the principles it was recognized that the Canadian load would be one of firm power for many years, whereas the United States load would tend to become one where peaking and thermal displacement were going to be the principal requirements for the use of water. The principles recommended determination and apportionment of power benefits to provide for equitable arrangements, taking into consideration the changing conditions expected. No heed has been taken of that whatsoever.

It was stated in the principles, and I have referred to this before, that there should be a principle providing for interconnection and co-ordination of the major power systems in the Columbia basin. The absence of that is going to leave Canada at a most serious disadvantage in the future. If you go ahead and build your plants, which are intended to be operated in a co-ordinated manner, and you have not your co-ordination agreement in advance, you are really at the mercy of the United States because their system is so large and

their requirements so different that we shall be unable to get the type of agreement that is necessary for us with properly defined principles. A co-ordination agreement could be worked out to provide equal and full benefits to Canada without too much loss to the United States.

In the principles it was recognized that it might be necessary to compensate the upstream nation in monetary terms to equalize benefits. Principle No. 2 was intended to provide in advance of construction of upstream storage a long range estimate of the expected benefits of the international co-operative undertaking. The estimates of benefits expressed in power or in monetary terms if necessary would be determined on the basis of an assured plan of operation. However, as you see, no heed has been taken of the difference in the load and requirements of the two countries, and what Merz and McLellan tell us, arises.

Mr. HERRIDGE: I have some more questions, but I shall cease my questioning at this time and at this point.

The CHAIRMAN: Now, Mr. Pugh.

Mr. PUGH: Thank you, Mr. Chairman. I have one or two questions here. I am glad you cleared up the point about the 200 hours because I gathered you spent some considerable time digging on the Columbia river. How far back in years would that go?

Mr. BARTHOLOMEW: Oh, about four or five weeks.

Mr. PUGH: No, I mean in years? When did you first become interested in the Columbia?

Mr. BARTHOLOMEW: I thought you were referring to the 200 hours.

Mr. PUGH: No, I believe that has been cleared up. How many hours did you spend on it?

Mr. BARTHOLOMEW: I am not quite sure, but I think it would be at least 2,000 or 3,000.

Mr. PUGH: When was your interest first directed to the Columbia river?

Mr. BARTHOLOMEW: In 1956 and 1957. I made a couple of trips through the valley. I do not know if you would call them a time study, but I was interested, and in 1959 I circularized government people here and at Victoria, as I think I told you, indicating the basic principles that I thought should be incorporated in the treaty. And it was before then that I started working with the board of trade. I suppose it has been going on rather intensely for six or seven years.

Mr. PUGH: Well, during the course of that study did you examine all the reports as they came out?

Mr. BARTHOLOMEW: It is very difficult to keep track of all reports. I did study reports as I could get them and as they came out. I dare say there are reports that I have not seen, but I have seen dozens. I brought a few of them here with me, but I had to leave a lot of material at home which I did not think was absolutely essential.

Mr. PUGH: Did you study the latest report of the Montreal Engineering Company dated March, 1964?

Mr. BARTHOLOMEW: No sir. Nobody ever sent it to me. If I could get them to send me a copy I would be glad to study it. I do not know if in the time since then I would have had the time to do it, that is, to make a study of it, but I have not studied that report.

Mr. PUGH: One point that you did make was that there was no appraisal of load. I take it you feel there was no examination made of power requirements by the province of British Columbia in relation, for instance, to the projects in British Columbia?

Mr. BARTHOLOMEW: The Montreal Engineering Company in 1961, after the treaty was signed, made a theoretical study in which they said that they did not like forecasting for long periods ahead. They made a theoretical study on the assumed basis of load growth at periods of six, eight, and ten years, and they gave an estimation of costs of power under those three conditions. But the trouble in forecasting power costs that far ahead is that none of us know what conditions will be in 10, 15, or 20 years.

I do not like to call it a forecast any more than does Montreal Engineering, but rather an assumption that has to be made of load growth and of use of generated power. In my opinion, as soon as you get beyond five years, you are on very questionable ground. I venture to suggest that in the next 15 years you will see lower generating costs by atomic power. Five years ago I would not have said this—with the exception of the very lowest cost hydro zones.

Mr. PUGH: As to costs, though, is it not generally accepted among engineers that now is the time to build power dams, and that if you delay, you may well lose the opportunity?

Mr. BARTHOLOMEW: Well, sir, I would like to make the prediction that I think the costs of Cadillacs are going to go up very substantially in the next five years, and that we are going to have better cars then. Therefore we should lay in a stock of Cadillacs to keep us going for the next 25 years. I can see no difference in the two philosophies.

Mr. PUGH: I can only direct your attention to appendix No. 3 of the Montreal Engineering Company report of March, 1964, which shows all power development in British Columbia, including the Peace river project, to be phasing in. The graph of course goes to 1990, and it shows an orderly constant line up of annual energy requirements and also of December peak loads on the Columbia, including the Canal Flats diversion, Murphy creek, and seven mile, and also including 49-10, Mica plants, on the Kootenay itself, that is the west Kootenay, plus the Canal plants, and it shows that British Columbia's requirements will hardly be met by these by 1989. Do you not think that is a fair assumption?

Mr. BARTHOLOMEW: No, sir; I think it is ridiculous for anybody to start predicting requirements 25 years in advance. Montreal Engineering Company point out how dangerous it is, and that they do not like doing it. I have their report here.

Mr. PUGH: With the Peace river project coming in now, would you say that possibly the Columbia should not be started at all in any phase?

Mr. BARTHOLOMEW: I did not say that.

Mr. PUGH: No, but I would like to get your views on it, if you are only going to look five years ahead.

Mr. BARTHOLOMEW: I stated this afternoon what I think is the proper program for the Columbia. I would build Mica and Duncan at somebody else's expense, and that is as far as I would go. After all, it does not cost you anything, and that is fine. But as for putting a 1,800,000 kilowatt plant in at Mica, as we are talking about in the white paper here, it is just incredible to me.

Mr. PUGH: No, but I think that has cleared up my point on that. You mentioned the bible of the United States engineers.

Mr. BARTHOLOMEW: What is that?

Mr. PUGH: The bible of the United States engineers.

Mr. BARTHOLOMEW: No, I said this is the bible of the hydrological, power, and economic features of the Columbia basin.

Mr. PUGH: The whole basin.

Mr. BARTHOLOMEW: Yes.

Mr. PUGH: There has been a good deal of talk about American engineers. I do not know. I have been sitting here and listening to some of our own engineers and of their qualifications, and what they have had to say about the Columbia, and I find it hard to agree that American engineers are any better in any way, shape or form.

Mr. BARTHOLOMEW: I did not say that.

Mr. PUGH: Oh!

Mr. BARTHOLOMEW: I said that they had a large team of very capable engineers, economists, and lawyers working on this whole project over such a long time that they had accumulated a wealth of knowledge and information that overshadows us.

Mr. PUGH: Do you discern that the hand of the United States has been shown up in this treaty?

Mr. BARTHOLOMEW: Yes, it is in their handwriting. Seventy five per cent of that treaty is written by United States personnel, because I am perfectly certain that no Canadian would have been so acute and clever as to put in these funny little regulations which you do not recognize at first, but which leave Canada out in the cold. No Canadian would do that.

Mr. PUGH: That is the tenor of your submission?

Mr. BARTHOLOMEW: Yes, it is.

Mr. PUGH: Has your examination of the Columbia basin taken in the various United States head waters, such as the Snake?

Mr. BARTHOLOMEW: This treaty takes in the entire Columbia basin from the Snake, the Flathead, the Pend Oreille and the Kootenays.

Mr. PUGH: The treaty?

Mr. BARTHOLOMEW: Oh, I am sorry. The United States work makes a study of the entire watershed of the Columbia including the Snake, the Pend Oreille, the Kootenays, the Columbia, the Flathead, and Spokane.

Mr. PUGH: Do you agree with the statement made here that the headwaters of the Columbia basin and river, even the lakes in there, the reservoirs and the storage waters vary so much, that at this point they have got completely out of hand so far as expense is concerned?

Mr. BARTHOLOMEW: Well, sir, I can explain to you the difficulty that has arisen there. Five or six years ago a Columbia river treaty was going to provide—and the United States knew it at that time—the most economical source of storage and power. If you have read the treaty interpretation by the United States negotiators that was issued in October, 1960, you will find in this the statement that it would cost the United States \$711 million to get the same storage in the U.S. as provided by Canada, and the amount of power they got out of that was substantially less.

Mr. MACDONALD: On a point of order, the witness said October, 1960. The treaty was not signed until January, 1960.

Mr. BARTHOLOMEW: No; but the report of the negotiators came out in September, 1960. The interpretation was not intended for Canadian circulation, but it got out. Immediately after the report of the negotiators came out, then the United States negotiators issued this which I believe was intended to be a private document for circulation. It did get out and I have had some copies made. It came out nearly three months before the treaty. In this interpretation, the United States points out that it would cost them \$711 million to get the storage which otherwise they get from the Columbia treaty, and actually they get more storage, although the treaty pretends they do not.

Mr. PUGH: Just to get back to the engineers, the negotiators, the lawyers and others, you feel that the Canadians were not adequately equipped to compete with the United States opposites.

Mr. BARTHOLOMEW: I am afraid that is correct.

Mr. PUGH: In spite of the fact that our people have had access to that bible, and also have been working on it, as has been pointed out, for something over ten years.

Mr. BARTHOLOMEW: One has to look at the treaty and one has to look at the protocol; one also has to look at the United States writings. One can identify it clause by clause. There is a very clever clause in the protocol saying the United States can only obtain stored water to replenish the diminished downstream benefits; but there is no statement at what time that stored water will be used. They are free to call for that stored water in December, and make us deliver through Mica 50 per cent or 100 per cent more than we can use, and there is nothing to prevent this.

Mr. PUGH: You mentioned a draw off on Libby and the fact that they might use this water for a million and one things. From the treaty what do you understand the Canadians must do with regard to the replenishment of Libby? If they drain off at Libby, we would not be able to operate through the Kootenay river down to the junction of the Columbia.

Mr. BARTHOLOMEW: Our power supply might be reduced.

Mr. PUGH: What about Libby itself?

Mr. BARTHOLOMEW: Libby will be equipped with about two or two and a half times as many generators as it requires for generating average kilowatt years. The United States system becomes largely thermal according to United States authorities' forecast for 1985. In the event of their having this Canadian storage, they will have a thermal supply of only ten million kilowatts. Without the 30 million acre feet storage, they forecast 14 million kilowatts of thermal power will be required. What will happen when they have the 10 million KW thermal power system? They will carry all their peak loads on the hydro system. It is much cheaper to put in additional hydro generators at a dam site to carry the peak loads which only occur during ten or 15 per cent of the year than it is to put in thermal capacity.

If you take this bible again, you will find the average cost of adding hydro generators at United States dam sites comes to \$60 to \$80 and I think, sometimes, \$100 per kilowatt. The estimated capital cost of thermal plants is \$160 per kilowatt. So, taking the case of peak loads with additional generators at Libby, they save \$60 a kilowatt for peaking generators, and they use their hydro generators at low load factor.

You have the Snake river, the Flathead, the Pend d'Oreille, the Kootenay and the Columbia. Nobody can forecast from year to year which watershed is the optimum for withdrawal of water. Climatic conditions can vary. They can increase the flow in one watershed. You can have a warm storm start blowing up over one section of the mountains, and this may bring down the Kootenay and/or the Columbia in flood. I do not think anybody can forecast this. The U.S. having control over the whole watershed, we have just got to do what we are told.

Mr. PUGH: As I look at this—I do not suppose you would say it, but I will—it is a question of "to hell with the Canadians".

M. BARTHOLOMEW: That is what has happened, sir; yes.

Mr. PUGH: That is the end of my questions.

Mr. LEBOE: I have a supplementary question. Is it not true that the West Kootenay Power and Light Company, which is a member of the group which is to be affected by the Libby dam, is in favour of the treaty and the protocol.

Mr. BARTHOLOMEW: The West Kootenay or Consolidated are today in a very sweet position. They are on the Pend d'Oreille at Waneta and eventually they will have a plant at seven mile if they want it with 360,000 kilowatts. That water essentially is controlled from the Hungry Horse dam in the United States.

Mr. LEBOE: I understand all that.

Mr. BARTHOLOMEW: I am telling you why they are in favour of it.

Mr. LEBOE: To save the time of the committee, what I am asking is, is it not a fact that the West Kootenay Power and Light and Consolidated Mining and Smelting—and the Canadian Pacific Railway, if you like—are the ones which are going to be affected mostly by the regulation of the water flow on the Kootenay river through Libby.

Mr. BARTHOLOMEW: No. If they did not have the Pend d'Oreille, what you say is absolutely correct. Having the Pend d'Oreille development they are no longer dependent on the Kootenay.

Mr. LEBOE: If they did not have the diversion measures in this treaty and protocol, they could divert the Pend d'Oreille river. They cannot under the treaty, but they could under the treaty of 1909.

Mr. BARTHOLOMEW: Seattle long since has obtained the right to the Boundary plant on the Pend d'Oreille. Up until that time, the possibility of diversion did exist. I did make a study of the cost of that diversion into the Columbia below the boundary, and I found, because it is so costly, that from the United States point of view they are much better off having Seattle develop the Boundary plant. Unless they scrap the Boundary plant, they cannot divert the water from the Pend d'Oreille along the boundary.

Mr. LEBOE: It is true they asserted that right.

Mr. BARTHOLOMEW: They absolutely insisted upon it.

Mr. LEBOE: But in the treaty there is no such thing as a diversion except for consumptive use.

Mr. BARTHOLOMEW: Except for consumptive use.

Mr. DAVIS: Mr. Chairman, I want to confine my questions essentially to the economic aspects of the treaty.

Mr. Bartholomew, I was impressed by your statement that the economic circumstances in 1961 were such that had the treaty been signed then it would have been an economic disaster for Canada. Now, do you know in the protocol a sales agreement has been negotiated whereby the Canadian share of the downstream benefits are sold for a period of years, which earns an amount of money sufficient to build the treaty projects. Do you regard that, in concept, as a sound proposition in order to pay for the treaty projects?

Mr. BARTHOLOMEW: I always have been in favour of Canada having the right to sell power downstream. I have never questioned that.

Mr. DAVIS: I am trying to deal basically with the concept and not whether this is as important a deal as could be obtained. You are not against a sale for perhaps 30 years for an amount more than sufficient to meet our construction and operating equipment.

Mr. BARTHOLOMEW: I would rather see a 20 year period. However, I am in favour of the sale of downstream benefits; I have said so in my brief and repeatedly otherwise. But, some of my friends do not agree with me.

Mr. DAVIS: I realize there is a difference of opinion on this subject and that is one of the reasons I put the question to you.

In respect of your credentials, at the beginning of your brief you state you are a professional engineer and later, I think you said the figures in your report were, you hoped, within the range of slide rule errors, within one or two per cent.

Mr. BARTHOLOMEW: Yes, I hope so.

Mr. DAVIS: Also in your brief you make reference to misinterpretations or, in effect, misrepresentations by some of the ministers of the day and, more particularly, I am looking at the page marked 5 and 6, paragraph 1-20, in which the concluding paragraph says:

They were only allowed to make estimates of the probable cost of energy which might result from the implementation of the treaty and these were misquoted at ministerial level.

In other words there have been misquotations, loose usage of cost figures, and this has been misleading not only to the public but to a number of people who are intimately concerned with the treaty. At this time I would like to turn to a more specific charge in this connection, which appears in some detail at page 41, and is headed "Summary and Explanation". On that page you calculate the cost to the United States of this treaty energy.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: The treaty and protocol energy?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: You report that the white paper, one of the ministerial papers, states that the cost of this energy to the United States is 5.3 mills. This appears in the first paragraph.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: And, you believe that a more appropriate figure, which you outline in your second paragraph, is 3.6 mills.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: In other words, these two figures, in your view, are figures which can be related one to the other; there is a 50 per cent discrepancy here somewhere in these documents.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: I want to be clear in this matter because you are saying, in effect, there is a misrepresentation and that the cost of the energy to the United States is not 5.3 mills but is, in fact, of the order of 3.6 mills, which is a very large discrepancy.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: Now, do you understand that there are figures quoted sometimes in United States dollars and sometimes in Canadian dollars?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: In other words, are these figures both in Canadian dollars, in your view?

Mr. BARTHOLOMEW: Well, it is not stated in the white paper whether they are using Canadian or United States dollars. One assumes they were using United States dollars. I used United States dollars as the cost of United States downstream benefits.

Mr. DAVIS: Is your figure of 5.3 mills Canadian?

Mr. BARTHOLOMEW: No; I assumed it is United States dollars.

Mr. DAVIS: You have assumed it is?

Mr. BARTHOLOMEW: Yes, because it is not stated in the contract.

Mr. DAVIS: And, the 3.6 mills is United States, from the point of view of your calculations?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: In a number of places in the white paper and also in the blue book it is quite clearly stated, I think, that the 5.3 mills is in Canadian funds.

Mr. BREWIN: It states that quite clearly, I think, in the book to which he is referring. I am sure Mr. Davis wants to be fair.

Mr. DAVIS: Page 124 is one of the pages in which it appears.

Mr. BREWIN: It says so in the note at the bottom of page 124.

Mr. DAVIS: Well, quite specifically, starting at page 173 and running through for several pages is a complete description of costing and the elements which make up the 5.3 mill figure.

Mr. BARTHOLOMEW: Where do you find that?

Mr. DAVIS: Starting on page 173 and continuing on for several pages. For example, I read in the middle of page 177, underlined:

The total value to Canada can therefore be expressed as 5.3 mills (Can.)—

Mr. BARTHOLOMEW: Did you say page 173?

Mr. DAVIS: I am sorry, page 177, in the middle of the page the following words are underlined:

The total value to Canada can therefore be expressed as 5.3 mills (Can.) per kilowatt hour.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: So, I think you are saying in the first paragraph of your brief that the cost to Canada as laid out in the white paper is 5.3 mills per kilowatt hour, Canadian.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: Now, your figure of 3.6 mills in the next paragraph is Canadian or American?

Mr. BARTHOLOMEW: American. As a matter of fact, this conversion of 5.3 mills, American should have been, I think, corrected.

Mr. DAVIS: Yes. In that case, the correction would be of the order of 8 per cent?

Mr. BARTHOLOMEW: It is 7 per cent, is it not?

Mr. DAVIS: Well, $92\frac{1}{2}$ versus 100, which is roughly 8 per cent.

Mr. BARTHOLOMEW: You see, I disagree totally with the inclusion of flood benefits.

Mr. DAVIS: Yes, and I want to go on to that by going to your next page. However, I first wanted to dwell on that page because it sets the framework for the next page, namely page 42, which is your proof. Now, your proof is the proof of your figure 3.6 mills and I believe it is 3.6 mills United States. This is at page 42, following immediately after the page to which I have made reference which includes the two paragraphs, one containing 5.3 mills as the white paper figure and the other 3.6 mills is your figure. Have you page 42?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: Now, your proof is essentially as follows: "Assume total accumulated cost"—and I think this is total payment by the United States—

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: —of \$501 million. For reference I would like you to turn also to page 138 of the white paper because the same figure appears there.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: So, you have obtained the \$501 million from the white paper. Now, in order to eliminate the flood control aspect or the flood control payment you take away \$69.6 million.

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: Your intention being to isolate the payment for power as distinct from flood control, is that right?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: You realize however, that the \$501 million is the accumulated value of United States payments to the year 1973?

Mr. BARTHOLOMEW: That is right.

Mr. DAVIS: That indication appears again on page 138 of the white paper. You realize also that the \$69.6 million is not related to the year 1973?

Mr. BARTHOLOMEW: It is related to an earlier date.

Mr. DAVIS: Yes. The comparable and proper figure to enter there is not \$69.6 million, but that figure which also appears at page 138, and which is the total of the three figures. The first payment is in respect of Duncan lake. It is \$15.3 million; the \$12 million beginning April of 1968 ending up at \$15.3 million as a result of interest accumulated; is that right?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: The comparable figure in respect of Arrow is not \$56.3 million but \$68.4 million bringing it to 1973. For Mica it is \$1.3 million because this is the same year, 1973. I am suggesting that the total of the power benefits, which is \$85 million, should be entered instead of your \$69.6 million; is that right? I would strike out your \$69.6 million and put in \$85 million.

Mr. BREWIN: By doing that you would prove his point even better than he does.

Mr. DAVIS: That is exactly right, but I am just pointing out the various errors. Simply to recapitulate, if you total the first column you will get your figure of \$69.6 million, but if you total the appropriate column you get \$85 million and we then continue to think in terms of the year 1973. Then when you look down the page and instead of having \$431 million it should be \$416 million.

Mr. BARTHOLOMEW: It should be less than that if that is the case.

Mr. RYAN: I have checked that arithmetic and it does end up as \$416 million.

Mr. BARTHOLOMEW: Yes, it is \$416 million rather than \$431 million.

Mr. DAVIS: That is the value to the United States in payments as of 1973 in respect of power. We have not taken out the value of flood control paid to Canada.

Mr. KINDT: Are you going to convert that figure to United States funds?

Mr. DAVIS: I will do that subsequently. The next step in your calculation, Mr. Bartholomew is to convert it to United States funds. First of all I should like to concentrate on your conversion. You state it should be converted from \$431 million to \$419 million. That is not a conversion of seven and one half per cent. It is a conversion more in the neighbourhood of three or four per cent. I should like to know how you arrived at the \$419 million in United States funds being equal to \$431 million in Canadian funds?

Mr. BARTHOLOMEW: It should have been less than that.

Mr. DAVIS: I would suggest it should have been, by your calculations, in the order of \$400 million; is that right?

Mr. BARTHOLOMEW: That is apparently correct.

Mr. DAVIS: In other words ignoring the earlier errors, it would have been \$400 million?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: The last and most important step has regard to the number of kilowatt hours which you use to divide this figure through. Your very important figure is 6.7 billion kilowatt hours. You establish that figure at the top and repeat it further down. You divide through by this amount of energy and you arrive at your figure of 3.6 mills per kilowatt hour. I should like to suggest to you that you have chosen the year of maximum downstream benefits and you have not followed the detailed presentation of the white paper which suggests that this declines and, therefore, that the total amount of energy involved is a good deal less than 6.7 billion kilowatt hours.

Mr. BARTHOLOMEW: I dispute the fact that the decline is real. I say that the decline is fictitious. I say that these kilowatt hours increase in value to the United States as thermal displacement or peaking energy. Admittedly this is not in the treaty, but you only have to look through the United States figures to find that the United States saves 25 billion thermal kilowatt hours with this storage. I dispute the statement that those benefits disappear.

Mr. DAVIS: You are not really disputing the arithmetic in the white paper but you are introducing a concept which you think should be included in the treaty?

Mr. BARTHOLOMEW: Yes.

Mr. DAVIS: You are defending your figures on the basis of a concept which you contend is the proper one?

Mr. BARTHOLOMEW: I contend it is the actual fact.

Mr. DAVIS: Do you have a copy of the blue presentation paper? I should like you to turn to page 99. In the fourth column under the heading "Agreed entitlement" you will see the downstream benefit energy entitlement rising to a peak in 1973 and then falling progressively with the passing of years. The figure you use to divide approximates the highest figure in that column.

Mr. BARTHOLOMEW: I use the figure 6.7 billion kilowatt hours.

Mr. DAVIS: The figure shown is 7.59 billion.

Mr. BARTHOLOMEW: I used the figure 6.7 and 7.14 is the highest. I am sorry, the figure 7.59 is the highest. I used the figure that we referred to in these papers as a continuing figure. There have been so many changes made in these ranges of diminution that this approximation was used for the calculation. I do not consider that represents the facts.

Mr. DAVIS: You are choosing to ignore the diminution that follows from the mechanics of the treaty, if you like, taking the highest downstream figure and approximately the highest year.

Mr. BARTHOLOMEW: The figure 759 represents the highest year but I took 6.7 which is approximately one sixth below that.

Mr. DAVIS: In any event you have taken a fairly high figure and continued it steadily through the 30 years.

Mr. BARTHOLOMEW: I maintain that this does not diminish.

Mr. DAVIS: You say the figures do not diminish, whereas the formula as it appears in the treaty does cause them to diminish.

Mr. BARTHOLOMEW: The formula in the treaty suggests a diminution.

Mr. DAVIS: The extent of the diminution is debatable but the formula in the treaty itself does cause these figures to diminish.

Mr. BARTHOLOMEW: The formula does not cause them to diminish. The treaty says they diminish, and that is quite a different thing.

Mr. DAVIS: My point is that the number you are using is a substantially larger number over the 30 years than the number embodied in the treaty arithmetic or in the sale agreement arithmetic.

Mr. BARTHOLOMEW: My figure is different. You are absolutely right.

Mr. DAVIS: I will come back to the difference between the treaty figure of 5.3 and your figure of 3.6. Those figures are not on all fours. There are many other differences.

Mr. BARTHOLOMEW: My figure quite evidently should have been 3.4 with these corrections you have made. I have exaggerated the costs to the United States of these true downstream kilowatt hours because they do not disappear.

Mr. DAVIS: I think the main points I wanted to establish were that there were substantial differences—I would even say discrepancies—in respect of the calculation of value flood control, with respect to exchange rates, and with respect to the sale agreement kilowatt hours embodied in the white paper as distinct from your own assumptions.

Mr. PUGH: May I ask a supplementary question?

The CHAIRMAN: Mr. Pugh.

Mr. PUGH: Mr. Bartholomew, you are basing your calculations on what you call the actuality that 20 years, 30 years and 50 years from now the same downstream benefits will accrue to the United States?

Mr. BARTHOLOMEW: The U.S. army engineers have calculated them so to do. They show that by 1985 the thermal replacement or reduction in thermal kilowatt hours will be 25 million, and they show in the year 2010 an anticipated saving in thermal kilowatt hours of 18 billion. They give the thermal kilowatt hours probably required in 2010, with 13 million acre feet, as 343 billion and with 32 million acre feet they say they will only require 325 billion. So there is a saving of 18 billion kilowatt hours, and the saving in 1985 was approximately 25 billion. Those kilowatt hours do not disappear, or do you think they do?

Mr. DAVIS: I think you said earlier, or you implied, that the diminution of downstream benefits is contrary to the principles—

Mr. BARTHOLOMEW: No, the facts.

Mr. DAVIS:—that were enunciated in 1959 by the International Joint Commission.

Mr. BARTHOLOMEW: I am sorry, Mr. Davis, I missed that.

Mr. DAVIS: Do you regard this diminution of downstream benefits as contrary to the principles embodied in the International Joint Commission principles of 1959?

Mr. BARTHOLOMEW: Yes, because the International Joint Commission report to the governments stated that cognizance must be taken of the difference between the characteristics of the loads between Canada and the United States. They forecast that the United States system will, as shown here, become more thermal and hydro peaking, and the principles stated that those differences must be considered in drafting a treaty; and they have been ignored.

Mr. DAVIS: When we are talking about peaking we are talking about capacities? Is that agreed? We are talking about capacity benefits?

Mr. BARTHOLOMEW: Peaking is capacity.

Mr. DAVIS: I want to read the International Joint Commission principles in reference to this particular subject. I am looking at page 48 of the white paper.

Mr. BARTHOLOMEW: Which principle?

Mr. DAVIS: Principle No. 4, the last paragraph on page 48. It begins by saying:

"It is expected that both dependable capacity—"

I want to concentrate on capacity.

"—and energy benefits will result during the early and intermediate stages of the storage operations, but during the later stages the power benefit may consist only of increased usable energy."

In other words, it is not contained capacity.

Mr. BARTHOLOMEW: I know that, sir, but right alongside of it they state that consideration must be given to the difference in the nature of the load in the two countries. They tell us right here that the Canadian load will be firm power long after the United States load has become thermal and peaking hydro. What is stated here does take place, but if the principle recognizing these differences had been taken cognizance of the treaty would never have gone ahead on the basis on which it appears to us today.

Mr. DAVIS: But this is in black and white; it is the International Joint Commission principle.

Mr. BARTHOLOMEW: I know that.

Mr. DAVIS: Admittedly the capacity declines.

Mr. BARTHOLOMEW: I know that, but they tell you right in the adjacent principle that cognizance has to be taken of the difference in the characteristics of the two loads and adjustments have to be made.

Mr. DAVIS: That is one of the reasons why they decline.

Mr. BARTHOLOMEW: I know that; that is one of the main reasons why adjustments should have been made.

Mr. DAVIS: The only point I wanted to bring up was that the principles do anticipate a decline in capacity.

Mr. BARTHOLOMEW: Yes, but that is not the basis for downstream benefits. The army engineers tell us in their report that, whilst the firm power benefits diminish, the project benefits may well increase as the system becomes thermal. If you had been negotiating the treaty, Mr. Davis, there would have been no diminution in downstream benefits.

Mr. DAVIS: Those are all my questions now.

Mr. BREWIN: I want to refer you, Mr. Bartholomew, to the summary in your brief which appears on page 1, although it does not seem to be numbered.

Mr. BARTHOLOMEW: This is the initial summary.

Mr. BREWIN: I would like to call your attention to the fifth statement in your summary in which you say:

Errors in press releases reproduced in the white paper (Feb. 1964) issued by the departments of external affairs and Northern Affairs and Natural Resources will be corrected.

I would like to have that statement a little more definite. According to my understanding, you must have been referring to the press releases, one of which appears at page 82 of the so-called white paper. Is that right? That is the first one? That is the press release of January 17, 1961?

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: I just want to make sure what press releases you are referring to.

Mr. BARTHOLOMEW: Are you referring to Article 5 or Article 7 on that summary?

Mr. BREWIN: Article 5.

Errors in press releases reproduced in the white paper (Feb. 1964) issued by the departments of external affairs and Northern Affairs and Natural Resources will be corrected.

Mr. BARTHOLOMEW: That is 1964. I see.

Mr. BREWIN: This is the white paper of 1964 and I want to identify your reference.

Mr. BARTHOLOMEW: Yes, I am with you.

Mr. BREWIN: The first press release to which reference is made there seems to be that of January 17, 1961.

Mr. BARTHOLOMEW: I see what you mean; yes. That is the Prime Minister's press release.

Mr. BREWIN: Then there is a comment on page 20 of your brief. Is that right?

Mr. BARTHOLOMEW: Yes; I am on page 20 now.

Mr. BREWIN: I do not want to go through them all, I just want to ask you a general question. Does what you say at pages 20 and 21 indicate what you think are the errors in that particular press release, or are there other errors?

Mr. BARTHOLOMEW: In this press release? Well, I did not deal with the worst of the lot—the tabulation which was issued at the end of the press release giving unbelievable data. I am referring to page 97 of the white paper. I regard this as a very serious misstatement of financial practice and economics. We give at imaginary values of power and benefits and profits, and then this statement appears:

This analysis does not include Mica which, in addition to its substantial downstream benefit advantage under the treaty will make possible very large power production in Canada.

Consider that a most sad document.

You asked me if I knew of any others. I did not deal with that; it was too involved. The Prime Minister said that the treaty does not depart in any fundamental from the program that was recommended in the progress report of September 28. Well, it changed the formula for the determination of flood benefits and, in my opinion, that deducted approximately 20 million from Canadian flood benefits. That is a deviation.

Mr. BREWIN: Mr. Bartholomew, I do not want to bother you by asking you to go through what you have written down for our benefit. Is there any other comment in respect of that press release that is additional?

Mr. BARTHOLOMEW: I have also made this reference to the next added credit, one part of the treaty—I am sure you will recognize this—if we were to get 10 per cent of the downstream power benefits, in another section Libby was to, as far as we could see, a lower level of benefits than Canada. In the report of the negotiators it was stated that Canada would receive first added value in its storage both in flood and power credits. The treaty itself abstracted the first credit position and merely confined it to power. Then, in the annex, it had a wording which appeared to include Libby as part of the United States in arriving at downstream benefits. If you care to look at Annex B of the treaty—

Mr. HERRIDGE: Mr. Chairman, I object to officials of the northern water resources branch being at the tables advising members directly. Mr. MacNabb was advising Mr. Stewart.

Mr. MACDONALD: I object to Mr. Herridge's objection; it is nonsense.

The CHAIRMAN: I did not see anyone sitting at the table. I did see Mr. MacNabb leaning over for a moment. Do you object to that?

Mr. HERRIDGE: Yes, it is quite improper in committee procedure.

Mr. MACDONALD: That is nonsense.

The CHAIRMAN: Please proceed. We have 25 minutes left.

Mr. BARTHOLOMEW: In Annex B, clause 7, it is stated that the Pacific northwest area for the purposes of these determinations shall be Oregon, Washington, Idaho and Montana west of the continental divide but shall exclude areas served on the ratification date by the California Oregon Power Company and Utah Power and Light Company.

In step 1 they say:

The installations included in this system will be those required, with allowance for adequate reserves, to meet the forecast power load to be served by this system in the United States of America, including the estimated flow of power at points of inter-connection with adjacent areas subject to paragraph 3, plus the portion of the entitlement of Canada that is expected to be used in Canada.

In one place we exclude them; in step 1 we include them. Of course, in the protocol we go hog wild and we include the whole United States power system.

Mr. BREWIN: Have you finished dealing with this particular press release?

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: The other press release to which I take it you are referring when you say there are errors which will be corrected is the press release of January 22, 1964, which appears at page 124 of the white paper. I take it that you have dealt with that in your report at some length?

Mr. BARTHOLOMEW: There was one point that I was including there, I think. It is stated in this press release on page 126 that among the improvements to the treaty through the protocol is an increase in Canada's downstream energy benefits by 14 to 18 per cent by using a longer period of stream flow benefit calculation.

I have made a study if the stream flows past Mica, past High Arrow and Grand Coulee, and I can only find, as I mention in my paper here, one or two per cent increase in water flow. As we can already recover in Mica some 10 per cent of the treaty water flowing in the 20 year and the 30 year periods, we do not get another critical period in the last ten years—I do not know where they get that 14 to 18 per cent. I have the figures here. I have checked them as carefully as I can and perhaps there is some explanation with which I am not familiar, but there is certainly no increase in power.

I would also like to point out that the incremental kilowatt hours estimates were 500 million. These appear to be straight arithmetical errors.

I am sorry, gentlemen, just give me a moment. Oh, here we are. I find in the 28-48, the average flow at Mica, taking these water tables, is specified as 20,100, and by extending the period to 1958 I get 20,500 cubic feet per second average flow, an increase of 2 per cent; and I get the figures at High Arrow of 38,450 as against 39,000 cubic feet per second, an increase of 1.4 per cent. Now, then, going from 14 to 18 per cent mystifies me. We see here—the total downstream increment of kilowatt hours owing to increasing the period to 30 years is stated to be 500 million kilowatt hours, which is however,

only 7½ per cent over the annual 6.7 billion. As based on the factual increase at High Arrow, the increment looks to be only 100 million kilowatt hours, owing to the extension of the term. So I do have difficulty in reconciling these figures. And it is also stated that the Canadian capacity benefits have increased by 5 per cent to 7 per cent through certification of the irrigation payments at Coulee as being part of the United States load. One thought that they were always part of it, and now I am not at all clear on the significance of it, because it was never referred to before. Perhaps there was some agreement made after the treaty which has not been made manifest to Canadians. Those are some of the arithmetical calculations which I found to be difficult to understand.

Mr. BREWIN: You have been dealing with the statement in the protocol.

Mr. BARTHOLOMEW: Yes. These statements appear in the protocol.

Mr. BREWIN: Yes. I take it that you have collected in your brief at pages 29 to 35 at any rate instances of what you feel or what you believe to be examples to justify your statement that there were errors in these press releases.

Mr. BARTHOLOMEW: Yes, sir. The figures I have given you appear to me to determine that. By the same token I consider that the statement that the United States kilowatt hours cost 5.3 is a misstatement. I give the United States cost as 3.6, but Mr. Davis has shown that I was quoting too high a figure, and that I should have said about 3.4 kwh. I have not checked out this figure.

Mr. BREWIN: On page 4 of your brief, paragraph 1-17, you say:

This is illustrated by letters written by ministers of the crown both in Ottawa and Victoria, wherein statements were made contrary to facts, and contrary to reports which the governments had received. Speeches and press reports were issued (undoubtedly written for ministers) incorporating serious errors and misinterpretations of the treaty. It was obvious that the ministers did not understand what they were stating and one must assume that their advisers were similarly uninformed.

That is a fairly severe indictment of those ministers. I wonder if you have some details to support it.

Mr. BARTHOLOMEW: I would say, sir, if you go back to the statements made by the Minister of Justice in 1961 after the Montreal engineering report came out, you will see he stated in speeches which he had printed—and I have not brought them with me, but I do have copies of them—that Montreal Engineering had declared that cost of the treaty power would be from 4 mills to about ½ mills; whereas Montreal Engineering, in the clearest terms, explicitly state that the figures they were using in that section of the report were theoretical figures in order to enable them to make a comparative analysis of various developments; they finally summed up the matter and said that the probable cost of the treaty power would be 5.4 mills. The Minister of Justice without question made a complete misstatement of what the Montreal Engineering Company said. I have letters from the minister in Victoria telling me that the treaty had followed the International Joint Commission recommendations. I think I dealt with them rather extensively today. But the treaty did not follow the recommendations, and the minister was misinformed. Those are two very specific statements which are not in accordance with the facts.

The CHAIRMAN: Is that all?

Mr. BREWIN: Yes, if the witness has finished.

The CHAIRMAN: Thank you. Now, Mr. Kindt. Is Mr. Kindt here? No, he has gone. All right, Mr. Groos.

Mr. GROOS: I shall be very brief. I should make just an observation and say while I am not an engineer or a lawyer on this committee, I believe that all

witnesses anywhere who feel they have a case to present or a point of view to present to this committee, who appear here, will feel that they are given a fair hearing. I think it is important that the witness himself, when he goes home, will feel that he has had a fair hearing.

I think it would be only courtesy to this witness and to others perhaps to point out that some of the features of the various presentations have already been presented before us, and it is for this reason perhaps that the members of this committee are not picking up the challenge of some of the more provocative statements that appear in his brief. I would also point out that Mr. Bartholomew has shown a special interest in coming down here to present his brief.

One thing he has said which I would like to pick out is this. He made a statement when I think he used the percentage that 95 per cent of the treaty was written by the United States.

Mr. BARTHOLOMEW: I think I said 75 per cent.

Mr. GROOS: Yes, you did say 75 per cent.

Mr. BARTHOLOMEW: I said about 75 per cent.

Mr. GROOS: You recognized that parts of the treaty were written by the United States from the fact that they just could not have been written by a Canadian. Is that correct?

Mr. BARTHOLOMEW: I did, sir.

Mr. GROOS: I do not wish to ask you to particularize there, but could you make a general statement such as this: You indicate that the advantages to the United States outweigh the advantages to Canada to the extent of three to one as far as this treaty is concerned?

Mr. BARTHOLOMEW: Yes sir, and I would refer particularly in that respect to annex B which bothered our Canadian ministers. The former minister of justice has written letters in *Engineering Construction and News Record*, or something like that, in which he declared that the treaty permits Canada to develop optimum power at their dam sites without penalty. The same thing was in fact stated by the Hon. Paul Martin. He disputes the interpretation of the annex B, which is a very difficult clause and one to be understood only by a person who was experienced in these matters. It was easy to make a mistake. I feel quite sure that annex B for example, and annex A were essentially written by the United States. Here you have a flat contradiction: clause (7) of annex B. In step one, and you have it carried over again in the protocol where they tie in the whole of the North American system to the northwest power projects. These increments in the system dimensions can only produce an earlier diminution of treaty benefits; they do produce an earlier conversion to peaking and thermal displacements benefits.

There is no definition of thermal displacement in the treaty. We are supposed to assess it. I am sure that if I had written a definition of thermal displacement energy, the energy benefits would not have diminished, and I think if Mr. Davis had written a definition of thermal displacement energy they would not have diminished. But they were written by the United States before he came into the picture.

Mr. GROOS: I have no further questions.

The CHAIRMAN: Mr. Stewart.

Mr. STEWART: I think the witness has been very generous with his time and I will not ask any questions.

Mr. WILLOUGHBY: Mr. Chairman, I have one or two things which, in my ignorance, I would like to have made a little clearer. In the beginning of the brief the witness read from the United States engineering report that the increase in demand will be slow in British Columbia. Can you tell us how much the increase has been since 1958?

Mr. BARTHOLOMEW: The long term growth in power demand in British Columbia has been in the order of 7 per cent, possibly a little higher. The British Columbia Electric shows, I think, a little lower figure. The long term growth of Canada is under 7 per cent. The long term growth predicted by the Bonneville power administration is between 5 per cent and 6 per cent. The base planning for long terms ahead with higher rates of growth is very dangerous. The Montreal Engineering made a forecast for 6 per cent, 8 per cent and 10 per cent. They had no idea which it would be. However, when a system becomes heavily developed and when utilization is large, the rate of growth becomes slower.

Mr. WILLOUGHBY: In view of the large population increase in British Columbia and the possibility of an even more rapid increase, would it not be considered that the suggested rate of power increase that will be developed both by the Peace and the Columbia, in progressive stages, will not be consumed, probably, at the time of the development.

Mr. BARTHOLOMEW: I shall not live to see it fully used, of course. I hope you will; I do not think you will.

The CHAIRMAN: You look pretty fit.

Mr. BARTHOLOMEW: You are speaking of 30 years. I am 79 years old.

Mr. WILLOUGHBY: The graph shows that the consumption of power would keep up to the gradual development, especially in relation to the Columbia.

Mr. BARTHOLOMEW: I would not like to forecast a greater growth than 7 per cent. About four years ago Mr. Williston made a speech declaring we had to prepare for a 10 per cent rate of annual growth. Looking over the experience of the whole world—and we have these past statistics for Europe, the United States and for the rest of Canada—I cannot see any likelihood of our rate of growth exceeding $7\frac{1}{2}$ per cent, which causes doubling in about ten years. It is faster than the growth in the Bonneville area and much faster than they are forecasting.

Mr. WILLOUGHBY: Thank you.

On page 12 in your brief you make the statement that the water of the Libby dam will back up into Canada for 80 miles. I presume you mean 40 miles?

Mr. BARTHOLOMEW: I knew that error was in there and I went through this basically this morning to find it. I knew it was in there and I knew it was wrong. I apologize.

Mr. WILLOUGHBY: On page 13 you make the statement that the diversion of the upper Kootenay into the Columbia at Canal Flats would not be justified. Luxor does not enter into the treaty at present, but I understand that is such an economical project that it could be done at very little cost.

Mr. BARTHOLOMEW: It could; but the trouble is the Windermere valley would have to carry an additional flood of 5,000, 6,000, 7,000 or 8,000 cubic feet per second for a week or a month in the year. Now, that has to go into the Columbia where the Kicking Horse meets it at Golden. I do not know whether or not you have seen the floods at Golden in high water years. In a high water year, if you put more than 5,000, 6,000, 7,000 or 8,000 cubic feet into the river at that time you certainly will have Golden under water. The other factor is that the Windermere valley itself has land which could be—and it is so stated by the Department of Agriculture—used for agricultural purposes but for the flooding and the cost of diking which is prohibitive. That is north of Luxor. The amount of flooding that would take place if you injected the Canal Flats water into the Columbia without retaining control of it would create a lot of trouble there.

I cannot agree with the Montreal Engineering Company Limited in their statement. I know that valley, and I have seen the waters in flood. Of course

I have never seen Canal Flats diverted, but I can imagine it would not be anything but disastrous. Furthermore, if you push that water into Mica when it goes during the flood season, you lose some of the effectiveness, because in years when you have spill—and you do have some—you merely increase the spill, so you do not get the full utilization of the water you push in during the flood season.

Mr. DAVIS: Why would you make the diversion in whole in a high water year? It is only the low water years you would worry about.

Mr. BARTHOLOMEW: Mr. Davis, I will give you the story. The Mica dam at the present time is able to control the water to 19,500 cubic feet per second with an annual flow of 20,500 for the 30-year period. We wasted water in 1957. We wasted water, even with this rate of control, in 1956. We wasted water in 1955. We wasted water in 1954.

Mr. WILLOUGHBY: Mr. Chairman, I will forgo the rest of my questions except one short one. On page 45 you made the statement that at the town of Revelstoke the water will go right back to Revelstoke, and the town itself will be in danger. My understanding is that the problem at Revelstoke, or one of the problems, is the undermining of the banks there by the fast water. Will not the slow water help to maintain the banks instead of having the fast water?

Mr. BARTHOLOMEW: No, sir. The experience of engineers who have been up there is that the high water will settle that silt. You see, Revelstoke is very largely on Columbia river silt which is bad material for building on. The opinion up in Revelstoke is that there will be a considerable area which will have to be vacated.

Mr. RYAN: I would like to ask Mr. Bartholomew to turn to page 14 of his brief, the second paragraph from the top of the page where he says:

Canada is given the right at the conclusion of the treaty term, namely 60 years, to divert approximately nine tenths of the average flow of the Kootenay river at the boundary northwards into the Columbia.

I would direct his attention to article XIII, clauses (3) and (4), at pages 67 and 68 of the white paper, which is the green book.

Mr. BARTHOLOMEW: Is that this one?

Mr. RYAN: Yes. It would appear to me from clause (3) the Bull river diversion comes in after 60 years, between 60 and 80 years, and takes about 75 per cent of the flow of the Kootenay across the border, and that the Dorr diversion does not come in until 80 years and then it takes 9/10 of the flow at the border. Is that correct?

Mr. BARTHOLOMEW: That is what the treaty says. We can divert 1½ million acre feet in 20 years and more in 60 years and 80 years.

Mr. RYAN: But, my point is it should read that Canada is given the right in 80 years to divert approximately 9/10 of the average flow of the Kootenay river at the boundary northward into the Columbia.

Mr. BARTHOLOMEW: Are we looking now at page 68 of the treaty?

Mr. RYAN: Starting at page 67, at the bottom, where it says in clause (3):

Canada has the right, exercisable at any time during the period commencing 60 years after the ratification date and expiring 100 years after the ratification date, to divert to the headwaters of the Columbia river any water which, in its natural channel, would flow in the Kootenay river across the Canada-United States of America boundary, provided that the diversion does not reduce the flow of the Kootenay river at the Canada-United States of America boundary near Newgate, British Columbia, below the lesser of 2,500 cubic feet per second or the natural flow.

I understand that is about 75 per cent of the river.

Mr. BARTHOLOMEW: That is from 60 to 100 years, and then they have the next clause which decreases the diversion.

Mr. RYAN: But, it is limited to the last 20 years?

Mr. BARTHOLOMEW: Yes.

Mr. RYAN: Then, it should be 80 years.

Mr. BARTHOLOMEW: This starts in 80 years time. I think you are right in that connection.

Mr. RYAN: Yes. There is somewhat of an error there.

Then, further down on page 14 of your brief, the sixth line of the third paragraph, it says:

There does not appear to be in the treaty any obligation on the United States to reduce the water level in Canada to permit the building of a suitable dam which would divert the flow northward into the Columbia.

Mr. BARTHOLOMEW: What page are we looking at?

Mr. RYAN: The same page.

Mr. BARTHOLOMEW: Is that page 13?

Mr. RYAN: No, page 14, about the sixth line down in the third paragraph, where it says:

There does not appear to be in the treaty any obligation on the United States to reduce the water level in Canada to permit the building of a suitable dam which would divert the flow northward into the Columbia.

In reference to this quote I would like you to look at article XII, clause 10).

Mr. BARTHOLOMEW: Yes.

Mr. RYAN: You should read article XIX, clauses (1) (2) and (3) with this. Article XII (10) says:

If the treaty is terminated—

Mr. BARTHOLOMEW: Yes, if it is terminated, but if it is not terminated the right is not there.

Mr. RYAN: But, there is an obligation there if it is terminated.

Mr. BARTHOLOMEW: Yes.

Mr. RYAN: Well, let us have that in it.

Mr. BARTHOLOMEW: But, if it is not terminated and suppose you wanted to continue the treaty; in some of the statements in the white paper it is suggested these benefits can be continued after the treaty date. I do not know that they can be.

Mr. RYAN: If we were going to build this dam certainly we would terminate the treaty, would we not, or build the dam through the water.

Mr. BARTHOLOMEW: There is no obligation even to reduce the water level. You have the right to build it there. But, the water level is 150 feet deep at the boundary and if that is not emptied I for one would not like to tackle building a dam there.

Mr. RYAN: Well, I do not know, I am not an engineer. However, it seems to me it is still water and it would be an easy matter to fill in there. That procedure has been followed right here in Ontario and no problem was involved. Furthermore, it seems to me if we can serve notice of termination of the treaty the United States must get the water off our land at that location.

Mr. BARTHOLOMEW: I would like them to, yes. But I do not see any obligation on them to do so. However, I agree with you we should have provided for that in the treaty. I suggest that if Canadians had written that clause such provision would have been explicitly provided.

Mr. RYAN: But my point is it is, and there is no reason to worry about it.

I would direct your attention now to page 15 of your brief, 3-19, articles 18 and 19, where it says:

It is also stated that 10 years notice must be given at the end of 50 years if the treaty is to be terminated at the end of the treaty term.

I direct your attention now to article XIX of the treaty itself, at page 73 of the white paper and, particularly, to clauses (1) and (2). Clause (1) states:

The treaty shall come into force on the ratification date.

Clause (2) states:

Either Canada or the United States of America may terminate the treaty other than article XIII (except paragraph (1) thereof), article XVII and this article at any time after the treaty has been in force for sixty years if it has delivered at least 10 years written notice to the other of its intention to terminate the treaty.

My point is that notice can be given at any time after ratification. We do not have to wait until after the 50 year period to give this 10 year notice.

Mr. BARTHOLOMEW: I think you are right. But, the implication is if you wait longer than 50 years you have to give 10 years notice and, therefore, if you give it at the end of 50 years it ends at 60; but, if you wait until 51 years it will go on for 61. If I have not expressed that clearly that is the intention I tried to convey.

Mr. RYAN: I just wanted to clear that matter up.

My final question is in respect of your second paragraph on page 24, where you say, in dealing with your page 3 of the protocol:

Canada might well be compelled to release Mica water at a rate far exceeding her own ability to use it, and thereby depriving Canada of energy which she would require later on.

I would like to direct your attention to clauses (3) (4) and (5) of article VI at page 63 of the white paper, where it says in clause (3):

For the flood control provided by Canada under article IV (2) (b)—And, this is the emergency flood control during the treaty term.

—the United States of America shall pay Canada in United States funds in respect only of each of the first four flood periods for which a call is made 1,875,000 dollars and shall deliver to Canada in respect of each and every call made, electric power equal to the hydroelectric power lost by Canada as a result of operating the storage to meet the flood control need for which the call was made, delivery to be made when the loss of hydroelectric power occurs.

Now, going on to paragraph (4) it says:

For each flood period for which flood control is provided by Canada under article IV (3) the United States of America shall pay Canada in United States funds:—

And this is the time after the termination of the 60 year period when the treaty is not renewed.

—(a) The operating cost incurred by Canada in providing the flood control, and

(b) Compensation for the economic loss to Canada arising directly from Canada foregoing alternative uses of the storage used to provide the flood control.

(c) Canada may elect to receive in electric power, the whole or any portion of the compensation under paragraph (4) (b) representing loss of hydroelectric power to Canada.

Now, sir after considering these clauses would you tell me what we have to lose in the way of energy by being compelled to release Mica water.

Mr. BARTHOLOMEW: The clauses you have read deal with the payments for flood control. I am dealing here with power generation. I start off, if you remember, by saying:

Already the treaty deprives Canada of 150,000 KW's of firm power capacity at Mica—

That represents the suggestion by Sir Alexander Gibb and Merz and McLellan. That is the clause which the Hon. Paul Martin disputes.

My statement continues as follows:

—and despite this clause, Canada has no assurance that the reduction in Mica capacity might not become still greater, despite the fact that the United States now has the right only to call on say two-thirds of the Canadian storage.

I am dealing with the condition in the protocol where it states that the United States shall only call upon Canadian storage proportionately to the downstream benefits credited. However, unless that call is distributed evenly over the low water months it has no use to us. Let us imagine in 1990 or 1985, that of the 15,500,000 acre feet of treaty storage there remain 10 million acre feet represented by the diminution of one third of the downstream benefits. The United States could call on that water when it likes. If the United States calls upon that water to achieve optimum power development in December and January we cannot use it at that rate. Our water for February and March would be diminished as we would have had to spill it earlier. I do not suggest this would happen but it could happen. If there was any intention to protect Canada's interest in respect of diminution storage then it should have been diminution for equal periods month by month during the low water season. It should not be on call as it appears to be in the protocol. It could have been defined directly and simply.

Mr. RYAN: My point is that if there is an economic loss and we have to spill it we get paid.

Mr. BARTHOLOMEW: That principle relates to flood storage, not storage for optimum power development and the two are quite different. In respect of flood storage we have an absolute right but power storage is under U.S. control for optimum U.S. plus Canadian at site and downstream power development.

Mr. RYAN: We are not bound in any way in respect of power development for the 60 year period. We could get out of this particular deal if we gave 10 years notice, is that right?

Mr. BARTHOLOMEW: This applies only after 50 years in the treaty. According to the protocol there is a right resulting from downstream benefits diminishing, in respect to storage to which the United States has call being similarly diminished. Dedicated storage is supposed to be diminished by, say, one third when downstream benefits have diminished by one third. If they call on that storage remaining during certain periods, as they might in some years, making us pass it at a greater rate than that at which we can use it we shall be in difficulty.

Mr. RYAN: If they do this they certainly are not going to get a renewal of the treaty, are they?

Mr. BARTHOLOMEW: I do not think they care a hoot about that situation. They will have this right for 60 years. My claim is that there is a great deal in this treaty that tells us what serious events may happen. We should frame a treaty in a way which means what we intend it to mean. If you look at the release by the United States negotiators of October, 1960 you will see that it is written in definite clear English making statements of fact. If the treaty had been similarly written by those individuals who can write so wonderfully well, none of these misinterpretations would have occurred.

The CHAIRMAN: Gentlemen, I thank you for your indulgence. We have now extended our hearings a little past our normal adjournment hour.

We will be reconvening tomorrow at 10 o'clock at which time our witnesses will be Mr. R. G. Anderson representing the Consolidated Mining and Smelting Company Limited and Dr. Arthur Casagrande from Harvard University.

Our meeting is now adjourned.

HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 15

TUESDAY, APRIL 28, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESSES:

Dr. Arthur Casagrande, Professor of Soil Mechanics and Foundation Engineering, Harvard University; Mr. A. J. Ring, Project Manager, C.B.A. Engineering Company Limited; Mr. F. J. Bartholomew, P.Eng.; *Representing Consolidated Mining and Smelting Company of Canada Limited:* Mr. R. G. Anderson, President, and Mr. W. W. Wadeson, Hydrologist, West Kootenay Power and Light Company Limited; Mr. C. H. B. Frere, General Solicitor, Consolidated Mining and Smelting.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (<i>Okanagan-</i>	Macdonald,
Byrne,	<i>Revelstoke</i>),	MacEwan,
Cadieux (<i>Terrebonne</i>),	Forest,	Martineau,
Cameron (<i>Nanaimo-</i>	Gelber,	Nielsen,
<i>Cowichan-The Islands</i>),	Groos,	Patterson,
Cashin,	Haidasz,	Pennell,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

TUESDAY, April 28, 1964

(26)

The Standing Committee on External Affairs met at 10.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Dinsdale, Fleming (*Okanagan-Revelstoke*), Groos, Herridge, Kindt, Leboe, Macdonald, MacEwan, Matheson, Nesbitt, Patterson, Pugh, Ryan, Stewart, Willoughby—(21).

In attendance: Dr. Arthur Casagrande, Professor of Soil Mechanics and Foundation Engineering, Harvard University; Mr. A. J. Ring, Project Manager, C.B.A. Engineering Company Ltd.; Dr. Hugh Q. Golder, Consulting Engineer; *Representing Consolidated Mining and Smelting Company of Canada Ltd.:* Mr. R. G. Anderson, President, and Mr. W. W. Wadeson, Hydrologist, West Kootenay Power and Light Company Ltd.

The Chairman introduced Dr. Casagrande who informed the committee of his educational background and experience. The witness then made a brief statement on the foundation conditions with particular respect to the Arrow and Mica creek dams, and was questioned. He was assisted by Mr. Ring in answering questions.

The Chairman thanked Dr. Casagrande on behalf of the committee, and the witnesses withdrew.

Mr. Anderson and Mr. Wadeson were called and made brief statements concerning their qualifications.

The brief of the Consolidated Mining and Smelting Company of Canada Ltd. having been previously distributed to the members, Mr. Anderson summarized the brief, which supported the Treaty.

Mr. Ryan moved that the brief be included as an appendix to the Proceedings but, after discussion, withdrew his motion. It was agreed that the question of inclusion of briefs as appendices to the printed Proceedings be referred to the subcommittee on agenda and procedure.

Mr. Anderson and Mr. Wadeson were questioned.

The questioning continuing, at 12.35 p.m. the committee adjourned to reconvene at 4.00 p.m. this day, on motion of Mr. Herridge.

AFTERNOON SITTING

(27)

The committee reconvened at 4.00 p.m. this date, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Fleming (*Okanagan-Revelstoke*), Gelber, Groos, Haidasz, Herridge, Laprise, Leboe, Macdonald, Matheson, Patterson, Pugh, Ryan, Stewart, Willoughby—(21).

In attendance: Representing Consolidated Mining and Smelting Company of Canada Limited: Mr. R. G. Anderson, President, and Mr. W. W. Wadeson, Hydrologist, West Kootenay Power and Light Company Limited; Mr. C. H. B. Frere, General Solicitor, Consolidated Mining and Smelting Company. Messrs. F. J. and R. Bartholomew.

The Chairman informed the committee that the publishers of the International Journal have submitted a bill for the 35 copies of the Spring 1963 issue, containing an article by General A. G. L. McNaughton on the Columbia River Treaty, which were distributed to the members of this committee. On motion of Mr. Davis, seconded by Mr. Cameron (*Nanaimo-Cowichan-The Islands*),

Resolved,—That this committee authorizes the purchase of 35 copies of the Spring 1963 issue of the International Journal, containing an article by General A. G. L. McNaughton on the Columbia River Treaty.

The committee resumed questioning of Mr. Anderson and Mr. Wadeson, who were assisted by Mr. Frere.

The questioning having concluded, the Chairman thanked the witnesses on behalf of the committee. Mr. Anderson, in turn, thanked the committee for their kind attention in the reception of the brief. The witnesses then withdrew.

Mr. F. J. Bartholomew was recalled and was questioned.

The questioning continuing, at 6.15 p.m. the committee adjourned, to reconvene at 8.00 p.m. this day, on motion of Mr. Herridge.

EVENING SITTING

(28)

The committee reconvened at 8.15 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Cadieux (*Terrebonne*), Cashin, Davis, Deachman, Fleming (*Okanagan-Revelstoke*), Gelber, Haidasz, Herridge, Kindt, Leboe, Macdonald, Matheson, Nesbitt, Patterson, Ryan, Stewart, Willoughby —(18).

In attendance: Messrs F. J. and Roy Bartholomew.

The committee resumed questioning of the witness, Mr. F. J. Bartholomew.

The questioning being concluded, the Chairman thanked the witnesses on behalf of the committee.

At 10.15 p.m., the committee adjourned until 9.00 a.m., Wednesday, April 29, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

TUESDAY, April 23, 1964

The CHAIRMAN: Gentlemen, I see a quorum and, accordingly, I would ask you to come to order.

As witnesses today we have Dr. Arthur Casagrande of Harvard University, who appears here at the request of the British Columbia Hydro and Power Authority.

Following Dr. Casagrande will be Mr. R. G. Anderson, representing Consolidated Mining and Smelting Company of Canada, Trail, British Columbia.

At this time I would ask Dr. Casagrande to read his own professional credentials. These credentials are in writing and I find some difficulty in reading them.

Dr. ARTHUR CASAGRANDE (*Professor of Soil Mechanics and Foundation Engineering, Harvard University*): Mr. Chairman, I was born in 1902 in the old Austrian empire. I graduated as a civil engineer in Vienna in 1924. I received from the same technical university in 1933 a doctor of technical sciences. Also, I have honorary degrees from Harvard University and the National University of Mexico.

In 1926 I started working for Professor Karl Terzaghi, who was then at the Massachusetts Institute of Technology in Cambridge. Karl Terzaghi died six months ago. He was the founder of modern soil mechanics and was throughout his life the world's leading authority in soil mechanics and engineering geology. It was my good fortune to have been closely associated with this great man for almost four decades.

In 1932, I accepted an invitation from Harvard University; I have stayed here since, with promotions from assistant to associate and full professorship in soil mechanics and foundation engineering.

Over the past 30 years I also have developed an extensive consulting practice, with special emphasis on earth and rock fill dams. I have served as consultant on a great number of dams in the United States and many other countries on several continents.

In Canada I have served for many years the Canadian government on several P.F.R.A. dams, including the south Saskatchewan river dam, on which Karl Terzaghi was also consultant.

I have helped Shawinigan Engineering Company on many of their dam projects. I am consultant on several large projects for Quebec Hydro including Manicouagan Five".

In 1961 C.B.A. Engineering Company engaged me for the Arrow dam to collaborate with Dr. Golder. About the same time CASECO added me to its board of consultants in respect of the Mica creek dam.

The CHAIRMAN: Thank you, Dr. Casagrande.

Would you now proceed to make whatever submission you wish to make.

Mr. CASAGRANDE: Specifically in respect of Arrow dam?

Mr. DAVIS: Mr. Chairman on which project did the witness work? Was it in respect of the Arrow lakes dam and its foundation?

Mr. CASAGRANDE: Arrow and Mica creek.

Mr. DAVIS: And, Mica creek as well?

Mr. CASAGRANDE: Yes.

Mr. DAVIS: Mr. Chairman, I think it would be very desirable if Dr. Casagrande gave a very brief summary of the foundation conditions as he understands them to exist.

Mr. CHATTERTON: Yes, and particularly in respect of Arrow.

Mr. CASAGRANDE: Specifically with regard to the Arrow dam, it is a low dam as dams go.

In this field of dam engineering the difficulties generally increase with the height and, often, with the square height of the dam. So, looking at it from that standpoint, it is not the type of dam that would make the headlines because of its low height.

The particular problem in respect of which I was asked to serve, at least at the beginning, was the question of control of seepage through the pervious foundation. Because of the great depth of pervious material in the valley it was not feasible or practicable to make a cut-off and it was necessary by other means to control the seepage through the foundation. This is done by a very wide impervious blanket; in other words, a blanket of very low permeability, together with drainage wells on the downstream side of the dam.

This type of solution probably is novel in Canada but it is not in other parts of the world. We have had larger dams where such solutions have been used, an example of which is the Missouri dam in the United States, to some extent, the high Aswan dam, but, particularly, a very large project on the Hindus river in west Pakistan, called the Tarbela dam, which is now in the design stage. This dam will be the largest earth dam in the world after it is built. It will be about 450 feet high, is underlaid by about 400 feet of highly pervious alluvial and is similar to the foundation conditions at Arrow dam.

The total widths of the impervious blanket at Arrow dam is considerably more conservative than any of the other projects I have mentioned. Otherwise the conditions at that project are very favourable.

From the standpoint of strength the foundations and abutments will be of very good materials from the standpoint of the construction of the dam. The available materials are excellent and nearby, so the cost of the dam would be reasonable.

There is one other feature which is not too common; the lower part of the dam will be placed through water. However, the materials are very well suited for that purpose.

The slopes of the dam are very flat; they have to be flat because of the method of construction through water. So, once the dam is completed throughout its life it then will be a much more stable dam than what normally would be built simply because it is forced upon us by the method of construction. Altogether, I would say this is a very conservative project from an engineering point of view.

The CHAIRMAN: Mr. Kindt, I have your name down as the first member to put a question.

Mr. KINDT: Mr. Casagrande, you mentioned that you have been associated with studies all over the world and, particularly, in the United States. Did you have anything to do with planning an entire watershed in any of these studies—that is, thinking of a watershed as the whole rather than the specific dam.

Mr. CASAGRANDE: No, sir. I am a specialist on the engineering of dams. You are referring to the study of a watershed which, of course, includes the analysis of water resources from many angles, and that is a subject outside of my field of specialization.

Mr. KINDT: Then, your field is purely specializing on the construction of a particular dam once the plan for the watershed has been established?

Mr. CASAGRANDE: That is correct.

Mr. KINDT: In other words, you are not prepared to comment on how these parts of a watershed fit together in terms of the composite whole?

Mr. CASAGRANDE: I am not qualified to comment in this regard. If I do know something about this it is simply because of my own personal curiosity. Of course I will read such material but I am not an expert in that regard.

Mr. KINDT: How many multiple purpose power projects have already been constructed and are in place on the Columbia river which would be served by the Arrow lakes storage?

Mr. CASAGRANDE: You are referring to dams in the United States?

Mr. KINDT: Yes.

Mr. CASAGRANDE: I would have to count them up starting with the Grand Coulee dam.

Mr. KINDT: There is the Bonneville dam, if I may help you.

Mr. CASAGRANDE: Yes.

Mr. KINDT: There is the Bonneville dam and the Dalles dam.

Mr. CASAGRANDE: Yes, the Dalles dam.

Mr. KINDT: There is the John Day dam.

Mr. CASAGRANDE: Yes.

Mr. KINDT: There is the Priest rapids dam.

Mr. CASAGRANDE: Yes.

Mr. KINDT: There is the Wanapum dam.

Mr. CASAGRANDE: Yes.

Mr. KINDT: There is the Rock Island dam.

Mr. CASAGRANDE: Yes.

Mr. KINDT: There is the Rocky Reach, Chelan and Chief Joseph dams, and there is the Grand Coulee dam.

Mr. CASAGRANDE: Yes.

Mr. KINDT: There is an intention to construct the Wells dam?

Mr. CASAGRANDE: Yes.

Mr. KINDT: And also the Ben Franklin dam. Also there is the Hungry Horse dam constructed on the Flathead river and the Knowles dam on the Flathead river is a future project. Are those all hydroelectric dams?

Mr. CASAGRANDE: They all include hydroelectric equipment.

Mr. KINDT: Is the intention of the United States in respect of the Canadian storage to add additional generators to those plants utilizing the additional water supply available from storage in Canada?

Mr. MACDONALD: Mr. Chairman, excuse me.

Mr. KINDT: Just a minute.

Mr. MACDONALD: Mr. Chairman, I should like to speak to a point of order. Dr. Casagrande stated at the commencement of his evidence that he was a specialist and had dealt with soil conditions of the High Arrow project. He also stated that anything he did know about the watershed was based on information he had read or received from outside sources. Surely we should offer the witness the courtesy of confining our questions to his specialty rather than wandering all over the subject matter.

Mr. HERRIDGE: Mr. Chairman, I suggest that Mr. Macdonald refrain from making these remarks until he has his opportunity to question the witness. I do not think he should interfere with another member's questioning of this witness.

Mr. MACDONALD: I think my comments are very relevant. We invited this witness to come here to give evidence in respect of his specialty. He has come to give evidence in respect of that specialty and has been kind enough to indicate to the members of this committee that he has not studied the entire treaty.

Mr. KINDT: Mr. Chairman, I should like to ask Mr. Macdonald what is his point of order.

The CHAIRMAN: I think Mr. Macdonald has made his point of order very clear.

Mr. KINDT: What he is trying to do is obstruct, and that is what I object to, Mr. Chairman. It is up to you to call him to order.

Mr. HERRIDGE: He is the hatchet man.

Mr. KINDT: Yes, he is the hatchet man.

The CHAIRMAN: Mr. Kindt, I do not know what that expression means in these circumstances. It seems to me that what Mr. Macdonald said was germane to our general discussions.

Mr. KINDT: In what way was it germane?

The CHAIRMAN: Obviously when we have a witness who is an expert in one particular field it is not reasonable or sensible that we should compel him to express opinions in respect of some unrelated subject. I am sure that Dr. Casagrande with his eminent background is able to indicate when he is not qualified to answer a question and I am sure he will be guided in giving evidence by his experience.

Mr. BYRNE: Mr. Chairman, with great respect to you, I cannot accept the premise that it is up to the witness to decide whether a discussion is in order or not. I am sure that Mr. Macdonald's point of order is well taken. Mr. Casagrande came here as a witness to give evidence in respect of the safety and economics of the High Arrow project. I understand this is the purpose of this witness being here. Later today we will have people before this committee who have been involved in the hydroelectric business for some 60 years. I should think that would provide an excellent opportunity for Dr. Kindt to ask this type of question in respect of the development of the Columbia basin. I respectfully submit that Dr. Kindt should confine his questions to the experience and knowledge of this gentleman.

The CHAIRMAN: Mr. Byrne, I quite frankly am not competent to judge whether or not what Mr. Kindt is seeking to elucidate through the witness has connection with his specialty or not. One would perhaps conclude that this was not so as a result of listening to Mr. Kindt's opening question. I am going to leave this decision to Mr. Kindt and the witness.

Mr. KINDT: Mr. Chairman, I should like to state before I continue with my questions that when I am cross-examining the witness I do not have to seek guidance from Dr. Byrne.

Mr. HERRIDGE: He is not a doctor yet.

Mr. KINDT: I do not think I need to seek guidance from any of the others present either.

Mr. Casagrande, at the beginning of my questions you were enumerating the dams on the Columbia river.

The CHAIRMAN: Mr. Kindt, I hope in your last statement you meant questioning rather than cross-examining.

Mr. KINDT: That is correct, Mr. Chairman, and there was no need for you to mention that.

Dr. Casagrande, you stated that you had been associated with dams all over the world and had tremendous experience in this field. I would presume

therefore, you are qualified to give information in respect of dams, whether we are referring to the High Arrow or any other. I hope that statement will answer the questions raised by other members during their interruption of my questioning.

We were discussing the subject of how many dams on the Columbia river would be satisfied by the storage of water at High Arrow, and the two facets are linked in our studies. The High Arrow project will form part of the watershed and supply water to these dams downstream?

Mr. CASAGRANDE: Yes.

Mr. KINDT: Will this extra water be utilized by the addition of generators at each of these dams for the purpose of generating additional electricity?

Mr. CASAGRANDE: All I know about that subject is what I have read.

Mr. KINDT: What in your view would be the relative cost of the High Arrow project?

Mr. CASAGRANDE: What do you mean by the relative cost?

Mr. KINDT: I am referring to the cost of High Arrow when it is finished and in operation.

Mr. CASAGRANDE: I do not know the answer to that question.

Mr. HERRIDGE: Dr. Casagrande, you said in your evidence earlier that the cost was reasonable. On what do you base that statement?

Mr. CASAGRANDE: I make that statement in this sense, that the materials are close to the dam site. If suitable materials are located close to a dam site, then one can build the dam at a reasonable cost. If one has to import construction materials over long distances, then the cost of the dam increases in proportion. Also the site for the High Arrow dam is favourable because of the fact that on the left abutment, or left side, there is rock within close proximity so that the concrete section for the spillway can be built. There are many earth dams in respect of which the cost becomes very large because of the necessity of making a deep rock cut for the spillway. I know enough about dams and costs of dams to know whether a dam project will be very expensive or reasonable because of local conditions.

Mr. HERRIDGE: You do not know the cost of constructing the High Arrow project?

Mr. CASAGRANDE: I do not know the cost.

Mr. KINDT: Have you made any study of that cost, or the probable cost?

Mr. CASAGRANDE: No, I have not.

Mr. DAVIS: Mr. Chairman, perhaps it would be better if we make it quite clear that Dr. Casagrande is concerned with foundations and materials only and not with construction costs or economics.

The CHAIRMAN: I think the members of this committee understand the purpose of calling Dr. Casagrande.

Mr. Kindt, do you have a further question?

Mr. KINDT: Yes. Dr. Casagrande, what are your views in respect of the value of High Arrow in relation to the flood control, power generation and other multiple purposes envisaged in the Columbia river treaty?

Mr. CASAGRANDE: I have no views in this regard as I have not made a study.

Mr. KINDT: You are not then in a position to give the committee any information in this regard?

Mr. CASAGRANDE: I am not really qualified to comment on that question.

Mr. KINDT: I rest my case there.

Mr. DAVIS: Dr. Casagrande, what would you expect to be the life of this dam erected on this foundation? Would it be very extensive?

Mr. CASAGRANDE: A well designed and well constructed dam of that type is more durable than a concrete dam.

Mr. DAVIS: You mentioned seepage underneath the dam. When is the seepage likely to be most extensive? Will it increase or decrease with the passage of time?

Mr. CASAGRANDE: It will decrease with the passage of time.

Mr. DAVIS: Is this owing to the filling up?

Mr. CASAGRANDE: There is always a deposition of material at the bottom of the reservoir. This will not be too great in the case of the Arrow dam, but the trend will be to decrease with time.

Mr. DAVIS: So that the worst seepage conditions are immediately after construction?

Mr. CASAGRANDE: Yes.

Mr. DAVIS: Finally, may I ask a question with regard to earthquakes? What happens physically to the foundation and to the dam itself in the event of an earthquake?

Mr. CASAGRANDE: The foundations are perfectly stable in case of an earthquake and so are the abutments, so that we do not expect any damage to occur to the foundation or to the abutments. As far as the dam is concerned, because of the unusually flat slopes, it will also have much more than customary resistance to the effects of the earthquake.

Mr. DAVIS: Have dams of that character gone down as a result of earthquakes?

Mr. CASAGRANDE: To my knowledge no earth dam has actually failed as a result of an earthquake.

Mr. DAVIS: Do you draw any distinction between the Arrow project on the one hand and Micra creek?

Mr. CASAGRANDE: This was a general statement.

Mr. DAVIS: So it applies to both structures?

Mr. CASAGRANDE: Yes.

Mr. MACDONALD: May I reaffirm for some members of the committee the following: Dr. Casagrande, your specialization is the question of soil mechanics in relation to dams, that is specifically the soil underlining a specific dam?

Mr. CASAGRANDE: And the design of the dam itself.

Mr. MACDONALD: I understood you to say that building a dam on the kind of underlying soil that we have at the Arrow site is not a novelty within general engineering experience.

Mr. CASAGRANDE: Yes.

Mr. MACDONALD: It has been done before successfully?

Mr. CASAGRANDE: Yes.

Mr. MACDONALD: And with larger dams?

Mr. CASAGRANDE: And with much poorer foundation conditions, that is much poorer material in the foundation than that which we have at Arrow lake.

Mr. MACDONALD: You say that you are referring not only to the fact that Arrow lake is partly on bedrock but to the gravel-like material?

Mr. CASAGRANDE: Exactly.

Mr. MACDONALD: Have you personally been on the site of High Arrow?

Mr. CASAGRANDE: Several times.

Mr. MACDONALD: I understand that you have also been advising with regard to the Micra creek dam?

Mr. CASAGRANDE: Yes.

Mr. MACDONALD: Could you describe to us briefly the conditions there?

Mr. CASAGRANDE: This is an entirely different type of dam. It is partly rock fill dam, the outer shells of the dam are built of quarried rock, and it is a much higher dam. The design of this dam has gone through several stages, and we have become more and more conservative in the proposed design.

I might mention that the design of earth and rock fill dams is not an exact science and that experts will not always agree. However, we might say that there is a certain spectrum with respect to slopes and other details within which engineers and experts will agree that the dams would be safe, and, in my judgment, both Mica creek and Arrow dams are designed at the safest end of that spectrum within which at the present state of engineering knowledge we consider the design safe. So we are on the safe end. The reason why we have been doing it is chiefly that of the increasing concern about what might happen in the case of an earthquake. It may very well be that in the future such designs will be considered too safe, but with the present state of knowledge we feel it is reasonable to be at the safest end of what is still within the spectrum that is considered good engineering practice, and yet not going too far.

Mr. MACDONALD: I have a final question with regard to the Arrow dam. Would you say that it will be as safe and permanent a structure for its purpose as any dam specifically founded entirely on bedrock right across the river?

Mr. CASAGRANDE: Yes, I can definitely say so.

Mr. HERRIDGE: I am a member representing the constituency in which this dam will be built, and naturally I have a great deal of correspondence about it. A good many of my constituents are concerned including several engineers I have spoken to. I think you mentioned that you have no knowledge of the failure of a dam of this type at any time.

Mr. CASAGRANDE: I mentioned that I have no knowledge of any dam failing owing to an earthquake, that is a dam designed along the principles that we have used on the Arrow dam and the Mica creek dam.

Mr. HERRIDGE: Have you any knowledge of dams of this type failing because of seepage around or under the dam?

Mr. CASAGRANDE: Not of the type that is proposed for this dam. There is no record of any dam failing that has a wide impervious blanket.

Mr. HERRIDGE: A good many of my constituents—in fact hundreds of them—have read an article entitled, "The Dam with Clay Feet" condensed from *Empire*, by William F. French as published in *Readers Digest*, April, 1951. This dam—the St. Francis dam—failed with a loss of 700 lives, 600 homes were destroyed and there was 50 miles of damage and debris. In this article it says:

Unknown to anyone, the trickles of water seeping around the dam had turned now into streams that gnawed at its feet of clay. About midnight the dam let go at both ends. Twelve billion gallons of water went thundering toward the sea.

Do you know anything about the failure of this dam?

Mr. CASAGRANDE: This was a concrete dam, not an earth dam. It was built on rock, a poor type of rock. However, potentially as the designers envisioned this project, no seepage should have taken place. I might mention, when it comes to seepage, that laymen and also sometimes engineers who are not specialized in dam engineering, have the idea that a dam or a foundation of the dam that shows seepage is unsafe, and that when there is no seepage the dam is safe. These two have nothing in common. A dam may leak like a sieve, and a foundation may leak like a sieve, and it might still be perfectly safe.

On the other hand, a dam may be absolutely tight and not a drop goes through, and it may fail the next moment. If we design a dam for seepage, that is to allow water to go through, we have at our disposal means to control the seepage in such a manner that it is perfectly safe as far as the dam is concerned. The features incorporated in the Arrow dam, the widths of the impervious blanket, are much more conservative than had been used on any other dam on a pervious foundation.

I would say it is the most conservatively designed dam with respect to seepage of any dam on a pervious foundation. From the standpoint of seepage through the foundation, there is not the remotest possibility of a dangerous condition developing.

Mr. HERRIDGE: Dr. Casagrande, I thank you for that. I was asked to bring this other instance to your attention and ask for your comments. This is an extract from the *Engineering News Record*, volume 170, No. 16, April 18, 1963, page 26, 1 f., entitled, "T.V.A. gives in at Hales bar".

The 50-year-old struggle between TVA and the Tennessee river at Hales bar dam has come to an end, owing to the river's persistent effort to flow under the dam rather than over it. TVA has acknowledged defeat, recent engineering studies having shown "that improvements at Hales bar would be more extensive than previously indicated and their success in completely sealing and stabilizing the dam could not be assured". TVA became the not so proud owner of this troublesome structure when it acquired the assets of the Tennessee Electric Power Company, and will replace Hales bar by a new lock and dam downstream.

Can you explain, sir, why Tennessee valley authorities had to give up their fight concerning the seepage under this dam?

Mr. CASAGRANDE: I am not familiar with all the details, but in that area we are dealing with pervious rocks, limestone full of solution channels, and those are some of the toughest problems that we can encounter, that is to try to control seepage through pervious rocks. Fortunately an alluvium, that is a deposit of sand, gravel such as we find in the river valley at Arrow dam, is very much easier to control from the standpoint of seepage.

I might also say that once a dam is built and has not been designed specifically for control of seepage, it will always be much more difficult afterwards to go in and try to introduce control measures than to design a dam with proper control to begin with. This whole subject of the control of seepage is one that has been highly developed in recent decades. At the time when that dam was built the engineering was simply not sufficiently well developed.

Mr. HERRIDGE: I have one final question. Would you guarantee that this dam is absolutely safe against earthquake and that there is no possibility of damage in the future to persons down below from earthquake or from seepage?

Mr. CASAGRANDE: So far as seepage is concerned I will guarantee. However, so far as earthquakes are concerned, unfortunately nature has it in its power, if it wants to, to destroy anything we build. For that matter even man, with modern tools at his disposal, has it in his power to destroy anything he builds.

Mr. HERRIDGE: We realize that.

Mr. CASAGRANDE: There is no way of building anything, whether it is a skyscraper or a bridge or a dam, in such a manner that it will be absolutely safe under the worst catastrophic earthquake. Nature can destroy anything we build, and we ourselves can destroy anything we build.

Mr. HERRIDGE: You say that the advantages in building the dam outweigh the risks involved against the acts of nature.

Mr. CASAGRANDE: I will say that the dam will be safe against serious earthquakes. A catastrophic earthquake that will destroy everything in that area cannot be envisaged in the building of a dam. We cannot build anything safely against such an earthquake. Furthermore, it really would not matter once everything is destroyed, whether that dam is also destroyed.

Mr. KINDT: Dr. Casagrande, would you state then that the best plan would be to co-operate with nature and not have the dam, or else to construct the dam and take chances on what nature may bring forward in the way of earthquakes and other things which might destroy it?

Mr. CASAGRANDE: I would say that if we wanted to co-operate with nature to the extent of being always safe, it would be better for us not to be born at all because there is no way of doing that.

Mr. GROOS: Talking about safety, I think all of us remember some time ago, not too long ago, we read about a dam giving way as a result of a landslide further up a lake which caused a monumental wave sweeping down the lake and destroying the dam. With your knowledge of soil conditions not only at the damsite here in Arrow but also further up the lake, is there any possibility in your view of a similar sort of accident happening to the Arrow lakes?

Mr. CASAGRANDE: In my judgment there is no possibility of a similar accident occurring to that dam such as has happened to the dam in Italy to which you refer.

Mr. HERRIDGE: I have a supplementary question. That raises an interesting point. With the raising of the water level in the Arrow lakes, have you examined the soil along the shorelines of the Arrow lakes and on the banks between Castlegar and Revelstoke, and if you have is there no danger in your opinion of very large slides into the lake as a result of seepage, similar to that which occurred at the Whatshan power plant some years ago? This was the result of seepage of water.

Mr. CASAGRANDE: If I might say, in that power plant the seepage was the result of leakage from the penstocks. In this case the water seeped into the adjoining rock masses above the power plant. The seepage which developed as a result of filling the reservoir would be seepage in and not out of the slopes and sides of the reservoir, so that there is no condition there that could in any way be similar to the conditions that developed at the power plant.

Mr. HERRIDGE: In various places the slopes are very precipitous and formed of, I do not know the technical term, a very slimy clay, in other cases it is silt. Is it possible for water to go underneath that and cause large landslides such as I have seen happen on a small scale?

Mr. CASAGRANDE: There is always the possibility of minor landslides along any artificial lake that is formed in the first few years after filling the reservoir. Let us take for example lake Roosevelt, that is the reservoir above the Grand Coulee dam on the Columbia river in the United States. There we are dealing with large deposits of extremely sensitive silt deposits, and we have had a number of slides into the reservoir. However, none of these slides has created waves of any significance at the location of the dam. To my knowledge the conditions along the shore line of the Arrow dam reservoir are not as bad as they are at lake Roosevelt, but even if slides of the same magnitude should develop it would not in any way endanger the dam.

Mr. HERRIDGE: In your opinion there is no danger of extensive damage on the shores of the Arrow lakes from slides between Castlegar and Revelstoke as a result of seepage?

Mr. CASAGRANDE: I did not say that. I have not studied in detail the local conditions to determine whether the shore line everywhere is safe against sliding.

All I wanted to say is that any sliding which would occur would in no way endanger the dam.

Mr. HERRIDGE: But it might endanger other property and possibly lives.

Mr. CASAGRANDE: I cannot say anything positive or negative because I have not studied the entire shore.

Mr. GROOS: Any endangering of lives that comes about as a result of a slide is not necessarily a danger which comes about as a result of building a dam. The danger would be there anyway.

Mr. CASAGRANDE: That may or may not be the case. Sometimes a slide is induced by the fact that a rising reservoir saturates adjacent ground or rather the slides do not happen while the reservoir is rising, but slides happen while a reservoir is falling; the ground is saturated and during a low down condition, while the reservoir is drawn down, there may be local material sliding into the reservoir.

Mr. GROOS: You said I think that in your opinion this was the most conservatively designed dam to be built upon a previous foundation that you know of.

Mr. CASAGRANDE: That is correct.

Mr. GROOS: In other words, this is the safest dam to build of this type?

Mr. CASAGRANDE: I do not want to put it that way because it would be an indictment of some of the other dams on which I was consulted, and I do not want to do that.

Mr. GROOS: I have one last question. This dam is known in this committee and across Canada as the High Arrow. The word "high" is a relative one. You said that in your opinion this was not as high as some other dams that you know of.

Mr. CASAGRANDE: I really do not know how this name High Arrow came into being. I would call it Low Arrow, because it is a very low dam.

Mr. GROOS: Could you give me some idea of the height of other dams of this type of construction that you know of?

Mr. CASAGRANDE: There are dams on the Missouri river of the order of 200 feet, and they are very important dams. I have already mentioned the Tarbela dam in west Pakistan which is 450 feet high, and very much longer, and which in volume will top every earth dam in the world.

Mr. GROOS: And how high is this one to be?

Mr. CASAGRANDE: The one in west Pakistan?

Mr. GROOS: No, the High Arrow, here.

Mr. CASAGRANDE: This one here is just a little over 100 feet.

Mr. HERRIDGE: Would Dr. Casagrande mind explaining the two figures in respect of height. What was the 450 feet in relation to?

Mr. CASAGRANDE: Four hundred and fifty feet is the height of the Tarbela dam in west Pakistan; and the dams on the Missouri river are in the order of 200 feet or a little more.

Mr. GROOS: And this one is about 100 feet?

Mr. CASAGRANDE: Yes, a little over 100 feet.

Mr. HERRIDGE: To its foundations?

Mr. CASAGRANDE: From the present river bed to the crest.

Mr. LEBOE: Could you tell me what height the Peace river dam is going to be?

Mr. CASAGRANDE: I am not connected with the Peace river, but I believe it will be something like 550 feet or 600 feet.

Mr. LEBOE: Would it possibly be the highest dam when built?

Mr. CASAGRANDE: The Peace river dam?

Mr. LEBOE: Yes.

Mr. CASAGRANDE: The Mica creek dam is about the same height.

Mr. KINDT: How did they go about obtaining that measurement the other day? A witness gave us a figure of 77 feet for the Arrow dam. Is that the depth from the water level down?

Mr. CASAGRANDE: I think the Arrow dam is distinguished by the fact that the hydraulic head, that is the maximum difference in water level between the reservoir level and the river level downstream is 77 feet. Therefore the actual or effective height of the dam so far as seepage is concerned, is even less than the height of the dam itself. Normally one would refer to the height of a dam and take in certain freeboard, that is, the difference between the maximum reservoir level and the crest of the dam. One has immediately an idea of the hydraulic head, and in this particular case the hydraulic head is less, from the standpoint of a hydraulic head, then a very low dam, 77 feet.

Mr. HERRIDGE: Is it not about 25 feet from low water to the river bed at this site?

Mr. CASAGRANDE: What is that again?

Mr. HERRIDGE: You said that the height, the total height is about 100 feet.

Mr. CASAGRANDE: It was actually more.

Mr. HERRIDGE: Above low water; then are we to assume that the distance from low water to the river bed is in the area of 25 feet?

Mr. CASAGRANDE: At the moment I do not recall that figure. There is a figure of 77 feet. It was merely the difference in the water level between the upstream and the downstream at the dam. That is the maximum difference in water level, and that is the figure which controls seepage through the foundation.

Mr. HERRIDGE: What is the distance from the base line of that figure to the river bed?

Mr. CASAGRANDE: That is the tail water level?

Mr. HERRIDGE: Yes.

Mr. CASAGRANDE: The water level downstream?

Mr. HERRIDGE: Yes.

Mr. CASAGRANDE: Is that the lowest tail water? The lowest tail water has an elevation of from 1,370, roughly to about 1,300, so it would be about 70; the water level, or the depth of water downstream on the river would be about 70 feet.

Mr. HERRIDGE: So the height of the dam would be this 70 feet plus 77 feet?

Mr. CASAGRANDE: Yes. The total height of the dam including the free-board is about 160 feet according to the figure which Mr. Ring has just given to me.

Mr. KINDT: What would be the additional height of the Arrow lake when the dam is full, over and above what it is now?

Mr. CASAGRANDE: May I have that question again?

Mr. KINDT: Yes. Let us take the Arrow lake at its natural flow.

Mr. CASAGRANDE: Its water level?

Mr. KINDT: Yes, and you construct a dam; how deep would the additional depth be? What would it be into the Arrow lake?

Mr. CASAGRANDE: Oh, the additional depth of water at maximum reservoir level?

Mr. KINDT: Yes.

Mr. CASAGRANDE: It would be 40 to 45 feet higher. The maximum water level before the dam is built, during the flood stage, has an elevation of 1,405; and the maximum water level of the reservoir after the dam is finished is 1,444; so we have roughly 40 feet more at that reservoir. The highest reservoir level would be 40 feet higher than the maximum river level at flood stage as it existed in the past.

The CHAIRMAN: Now gentlemen, have we finished our questioning?

Mr. HERRIDGE: May I ask one question of the gentleman who is sitting just to the left of Mr. Casagrande, namely, Mr. Ring, who seems to be very well informed in this matter. Is he able to tell us the cost of constructing the High Arrow dam? We have been denied this figure up to date.

Mr. A. J. RING: No, I am unable to supply it.

Mr. HERRIDGE: Do you have this figure?

Mr. RING: No.

Mr. HERRIDGE: Do you have knowledge of it?

Mr. RING: I have knowledge of it, yes.

Mr. HERRIDGE: Why is it not possible for this committee to get the figures as to the actual cost of construction of High Arrow?

Mr. RING: I believe that question was answered last Friday. These figures have been submitted to the British Columbia Hydro and Power Authority.

Mr. HERRIDGE: Was it not their wish that these figures be given to this committee?

Mr. RING: I do not know that.

The CHAIRMAN: Thank you, Mr. Herridge.

Mr. DAVIS: I have one supplementary question. With regard to the Arrow lakes and the land abutting on the Arrow lakes, there are some areas where there are banks coming up to the lake or down to the lake which are composed of gravel, sand and clay, and some conditions may develop similar to those at the Roosevelt lake back of Grand Coulee. How long would it take for those conditions to stabilize? There will be some slides or cut-backs. How long will it take until they are stable and, in effect, grass grows there? Stability eventually will develop.

Mr. CASAGRANDE: Oh, yes. It depends on the type of materials and also on the manner of operating the reservoir. If it so happens that the first throw down is a fast throw down, you could develop all the slides and get them out of the way quickly. On the other hand, if for many years the reservoir is operated and there is no throw down, or the throw downs are gentle, many years later a fast throw down may develop and you may have delayed slides. I am not familiar with the proposed operation of this reservoir, so I could not comment on that. However, it is a matter of time if stable conditions are created. It may be that you will not be bothered by any slides. It depends entirely on the type of materials.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Dr. Casagrande, you referred to the Roosevelt lake at Grand Coulee?

Mr. CASAGRANDE: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): For a very large part of the area there, is not the formation rock?

Mr. CASAGRANDE: Well, no. There are unusually thick beds of silt, particularly on the west shore, and they are subject to sliding. To my knowledge such silt beds do not exist along the shores of the reservoir of the Arrow dam.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): As I recall that country before it was flooded, there were virtually rock cliffs in the neighbourhood of Swift Rock, now submerged, I presume which had not apparently eroded to any very great extent.

Mr. CASAGRANDE: No.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It is a very stable formation.

Mr. CASAGRANDE: Most of the shoreline is perfectly stable. Also, there are very excellent gravel deposits which are not affected by slides. It is only in the localities where we have the silt beds, which are rather unstable and sensitive to saturation, where slides have developed.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Can you tell us what is the average height of those cliffs surrounding Roosevelt lake?

Mr. CASAGRANDE: Of the silt?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No; of the cliffs.

Mr. CASAGRANDE: No. I am not familiar with all those details.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It will be very much less, however, than the terrain surrounding the Arrow lakes.

Mr. CASAGRANDE: You mean the actual mountains, the height of the mountains which surround the reservoir?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Yes. As I recall it, the old bed of the Columbia there was in a comparative plain; there was no mountain going up above it as there is at the Arrow lakes.

Mr. HERRIDGE: Our slopes go up 11,000 feet in one place.

Mr. CASAGRANDE: I expect you have much higher mountains.

Mr. STEWART: Mr. Chairman, I would just like to ask the witness one question on this point which has come up. I would like to ask the witness whether he is familiar with any extensive landslides which have taken place in the area of the Arrow lakes within recent time.

Mr. CASAGRANDE: No; I am not familiar with it.

Mr. HERRIDGE: Have you ever heard of the Arrowhead slide when half the mountain fell into the lake and the steamer *Rosslund*, which was 800 tons, which was tied at the wharf was raised six feet and thrown right upon the lock at Arrowhead. That was in 1902.

Mr. CASAGRANDE: That was the year I was born.

Mr. STEWART: Such a catastrophe would not affect the Arrow dam.

Mr. CASAGRANDE: To my knowledge there are no conditions owing to slides at the site of the proposed dam that would in any way endanger the dam.

Mr. KINDT: Then, I would take it from this discussion, Mr. Casagrande, that you would agree the economic, legal and political aspects must be decided before the physical engineering and design of the dams can take place?

Mr. CASAGRANDE: Yes, sir.

Mr. KINDT: And you have nothing whatever to say about those other three important aspects of watershed development?

Mr. CASAGRANDE: That is correct.

Mr. KINDT: You have confined your remarks entirely to the physical aspect which is the construction and planning of dams?

Mr. CASAGRANDE: Yes.

The CHAIRMAN: May I, on behalf of the committee, thank you, doctor, for appearing?

May I ask Mr. R. G. Anderson, president of West Kootenay Power and Light Company Limited to appear with whatever persons he wishes to have with him.

Mr. HERRIDGE: Mr. Chairman, has any correspondence been received lately?

The CHAIRMAN: Thank you, Mr. Herridge. I am advised that one letter has been received from C. R. Spicer of P.O. Box 162, Nakusp, British Columbia.

Mr. HERRIDGE: Have you not received a letter from the Bonneville and South Slokan women's institute expressing strong opposition to the High Arrow and Libby dam?

The CHAIRMAN: I thought it was made clear that I did not intend to comment on the contents of any of these letters.

Mr. HERRIDGE: Have you received a letter which covers the communities between Taghum and Crescent valley along the Kootenay river?

The CHAIRMAN: I am advised it already has been reported as having been received. I reported it on Monday, April 20, 1964.

Mr. HERRIDGE: Thank you. I overlooked it.

Mr. R. G. ANDERSON (*President, West Kootenay Power and Light Company Limited, a subsidiary of Consolidated Mining and Smelting Company of Canada Limited*): Mr. Chairman and members of the committee, my name is R. G. Anderson. I am a graduate with a bachelor of applied science degree from the University of British Columbia. I obtained my master of science degree from McGill University, and I am a registered professional engineer in the province of British Columbia.

At the present time I am president of the West Kootenay Power and Light Company which is a power subsidiary of Consolidated Mining and Smelting Company of Canada, generally known as COMINCO.

West Kootenay Power and Light Company owns and operates one plant on the Kootenay river as a public utility to serve the public. The power company also owns under a management contract with COMINCO, manages and operates the power system of COMINCO which consists of the generating plants and their transmission system. COMINCO has four plants on the Kootenay river and one plant on the Pend d'Oreille river.

For the last 17 years I have managed the power operations of the two companies. I have appeared at various times before the National Energy board of Canada, the royal commission on energy, and I have been engaged in the financial and administration end of the business, contractual arrangements and agreements. One of the recent agreements was of an international character, an interchange agreement with the Bonneville power administration which is a United States government agency.

Associated with me on the technical side of our operations I have Mr. Wadeson and, at this time, I would ask Mr. Wadeson to give his qualifications.

Mr. W. W. WADESON (*Hydrologist, West Kootenay Power and Light Company Limited, Trail, B.C.*): Mr. Chairman, I received my early education in England and received my London matriculation there. I matriculated rather early and then spent two years in post-matriculation work in science. I spent one year at London University taking chemistry, mathematics and physics. Mr. Chairman, that is the limit of my formal education.

I came to Canada in 1929 and in 1930 I joined the West Kootenay Power and Light Company. I became engaged with a field party making surveys. I was transferred to the design office and from 1930 through until about 1945

was engaged largely in the hydraulic features of the design of power plants, river improvements generally and hydraulic structures.

In 1938, the company had before the International Joint Commission an application for storage in Kootenay lake and I was engaged largely in some of the original work that set up the necessary channel improvements and the basic rule curves for controlling that operation.

At that time it became necessary to make an appraisal of the resources in our watershed and my services were used in respect of various principles of operating them productively. Since I had been engaged in hydraulic power plants I drifted into that line of endeavour.

My first connection with an international matter was in 1951 when General McNaughton requested my services and I was seconded to the work group of the international Columbia river engineering board, which at that time was studying the Libby project. In the following years I was successively associated with the governors' power policy committee which studied the question of downstream benefits, and the engineering committee which was associated with the British Columbia advisory committee, which was set up by the province of British Columbia to study the Columbia river question.

From 1956 until 1958 I was seconded to the Fraser river board to direct the technical studies in river basin design, which was something similar to the Columbia river design as we know it now. The Fraser river problem consisted of arranging multi-purpose developments in order that flood control could be achieved in the Fraser river without being too harmful to salmon and, at the same time, being virtually self-supporting by means of power developments. That work concluded in 1958. During those years I had been actively engaged under Mr. Anderson's direction in negotiating for the international interconnection and we were just successful in getting permission for that interconnection last year. I am engaged now in the work of setting up the procedures for controlling this international tie-up.

Mr. Chairman, I think that covers everything I have to say at this time.

The CHAIRMAN: Would you proceed, Mr. Anderson.

Mr. ANDERSON: Mr. Wadeson and I are here today on behalf of COMINCO and with the authority of the management of COMINCO. The Chairman of your committee has a letter on file to that effect.

Following the submission of our COMINCO presentation may I suggest, Mr. Chairman, that Mr. Wadeson and I be considered as joint witnesses and in the event of questions either Mr. Wadeson or I shall endeavour to answer, depending on to which field the question may relate. I assume copies of the submission have been handed to all the members of the committee.

Mr. CHAIRMAN: That is correct.

Mr. ANDERSON: This submission is relatively short and, in view of that it is your wish that I read it? If not, I will endeavour to summarize the main points in it, subject to later questions. However, I have no summary prepared at this time.

The CHAIRMAN: Would you do that, please.

Mr. BYRNE: Mr. Chairman, since the brief appears to be quite short, consisting of only 16 pages, I wonder if it would be desirable if Mr. Anderson would read the brief.

Mr. HERRIDGE: Agreed.

Mr. STEWART: On a point of order, Mr. Chairman, I think we have tried to establish a very useful practice here, that when briefs are presented they should be presumed read by members of the committee. As you know, we

have had some very long briefs and the mere fact a brief is short should not be an argument for having it read.

Some hon. MEMBERS: Agreed.

The CHAIRMAN: Is that agreeable to the members of the committee?

Some hon. MEMBERS: Agreed.

The CHAIRMAN: Then, Mr. Anderson, I would ask you to summarize your brief which you already have furnished to the committee.

We do appreciate your co-operation in mailing this material to us in accordance with our request.

Mr. ANDERSON: You all have a copy of this brief before you. Perhaps I could just comment on the pages as I go through them.

The first page gives a description of the company, indicating its very large industrial activities in both Trail and Kimberley as well as other centres and the production of metals, fertilizers and chemicals. There is some mention of the expansion programs of Cominco in respect of metals, fertilizers, pig iron, acids and so forth.

On page two there is an indication that in the period 1964 to 1971 Cominco's planned capital expenditures in the Trail-Kimberley area amount to approximately \$65 million. Some of these projects are under way. A fertilizer addition was just opened three weeks ago at Kimberley. We are now producing 100 tons of pig iron per day and soon an additional 200 tons per day of pig iron will increase the total production to 300 tons. The acid plant is about completed at Kimberley. There are further plans for the production of fertilizers generally in Trail. There are additions planned to our zinc capacity as a result of the expected shipment of Pine Point concentrates from the Northwest Territories. This information is simply placed here to indicate that Cominco is expanding in a very large way. The major portion of its processes is electrolytic, plating of the lead and zinc and electric furnace operation in respect of pig iron.

Cominco is a very large consumer of power, and power is a very important element in the operations of Cominco. At page 2 in the last half there is an indication of the opinions of the departments of the provincial government about the economy of southeastern British Columbia and the importance of the operations of Cominco to the general economy, employment and so forth.

Page 3 lists the tonnages of materials produced. I think it is also interesting to see at page 3 that Cominco in the Kimberley-Trail area last year employed 5,555 persons with an annual payroll of \$30,690,000.

On page 4 there is an indication of the very large proportion of Cominco output sold in export markets. You will notice that in respect of the lead zinc production about 70 per cent is sold outside of Canada and in respect of fertilizers 63 per cent is sold outside of Canada. The export market is of great importance, and the costs of production are of extreme importance to Cominco in a very competitive market. For these reasons, the consumption of power, the availability and use of low cost power are very essential elements.

In the bottom half of page 4 we have indicated the installed power plant capacity of the Cominco-West Kootenay system. For the purposes of this brief the systems were combined because it is easier to present the power figures in respect of a system. At the present time 560,000 kilowatts is the power plant capacity. A fourth unit will be added shortly at the Waneta plant, and the production capacity will be increased to 650,000 kilowatts.

On page 5 there is some indication of the power system operating on the two rivers, the Kootenay and the Pend d'Oreille.

On page 6 it is stated that the power plants on the Kootenay river are regulated through the Kootenay lake storage of 673,000 acre feet and have

been since 1938, under an order of the international joint commission. The Waneta plant on the Pend d'Oreille river is a run-of-river plant which depends upon three reservoirs in the United States. This river runs for only some 15 miles in Canada and through that distance falls some 400 feet. There is no possibility for storage in Canada on the Canadian part of the river.

Cominco investigated the Pend d'Oreille river as far back as 1929 as a power source. As far back as 1929 under natural conditions the river fluctuated in flows from somewhere between 2,500 and 3,000 cubic feet per second up to flood time flows of 170,000. Without storage in Canada it was a poor power source.

Following that, Cominco developed the Kootenay storage by building a dam on the Kootenay river. Subsequent to that we turned again to the Pend d'Oreille river. By that time, in the 1950's, the United States had created considerable storage on their side on the Pend d'Oreille and its tributaries. These are listed on page 6 and include Hungry Horse, Flathead lake, and Albeni falls with a total of 5,350,000 acre feet; a considerable amount of storage.

These reservoirs were built by the United States for its own use to serve their plants further downstream. Cominco realized that these reservoirs were under the control of the United States and was fully aware in building the Waneta plant of the conditions under which it would be built.

The first two units were installed and firmed up by using the Kootenay lake storage and the maximum production from the Kootenay lake plants as an integrated system. When it came to installing the additional units, numbers three and four, some other means of firming up these units had to be found. We were aware of this, of course, at the time the plant was built.

We always had in mind that a reasonable and sensible solution was an interconnection with another system, and the reasonable interconnection from our geographical location would be with the Bonneville power administration. Over the years we have talked to the Canadian governments, the British Columbia governments and the United States government and, after some negotiation, with the authority of the national energy board of Canada, an agreement was reached with the Bonneville power administration. This interconnecting line is being constructed at the present time and will be in operation late this year in October or November.

This interconnecting line will permit the interchange of energy between the Bonneville system and the Cominco system. Its chief purpose is to make up for low flows at certain times of the year because the United States authority has control of the reservoirs in respect of filling or storing. We do have low periods of flow, as low as 4,000 feet per second, and 5,000 feet per second, which are hardly sufficient to run one generator. With this interconnection we will simply draw energy from the Bonneville system, if they have it available, and later during the storage season when the flows are increased we will generate the power and return it.

There are no dollar costs involved in energy interchange; it is simply kilowatt hours that are balanced off over a twelve-month period. It is a very equitable arrangement. Without the United States storages, Cominco would not have built the Waneta plant and probably would not have carried on the development over the last ten years. That is mentioned at the bottom of page 7.

Without the \$45 million Waneta plant, with an ultimate capacity of 360,000 kw., Cominco would not have undertaken and carried out the major industrial expansion program at Trail and Kimberley over the last ten years, with consequent effect on the economy of the Kootenay area. It is of significance, and perhaps not generally recognized, that the United States storages on the Pend Oreille river have provided a power

source in British Columbia equivalent to a potential installation of approximately 700,000 kw., which otherwise would not have been possible.

Page 8 covers the load and resources, and the power requirements for the future, involving the planned expansion of Cominco. The very minimum is 15,000 kw. a year. Cominco is actively studying steel production and if that should go ahead in the next few years, which seems very likely, the power requirements will be considerably increased.

On page 9 I make some comments on our thoughts on the treaty in general. This covers flood control. We say that Cominco supports the Columbia river treaty as clarified by the protocol, because it provides for the orderly development of the Canadian part of the basin by arranging for the control of Canadian rivers and leaving them in their natural channels to increase the potential power production at sites close to present load centres. As a general principle, Cominco opposes the diversion of the Kootenay river into the Columbia since it would alienate present or potential power resources from an area that is already highly developed industrially to a location that is presently remote from any major load centre.

Then we mention flood control. Through our control of Kootenay lake under the terms of the International Joint Commission order of 1938, we do have some flood control at Kootenay lake for the protection of the reclaimed lands round Creston and Bonners Ferry in Idaho; but under a very major flood such as that of 1894 these areas would be flooded out and the Cominco flood control in Kootenay lake would be ineffective. The reclaimed lands at Creston are subject continuously to the danger of floods and they need flood protection. To protect against these very high floods, Libby would be of great importance.

On page 11 we mention the High Arrow project. I think probably it may be covered later in questioning. The High Arrow reservoir will not regulate water that passes through any of our present plants. However, releases from Arrow could be used to create more uniform flows in Kootenay river. They have no direct effect on power production, but there is an indirect effect because when the entities co-ordinate and set up their operating programs, the British Columbia entity would certainly be in a position to correlate the releases of a very large volume of water in High Arrow with releases from Libby. Thus, there would be general flexibility of all the storages in the system. It would be reasonably simple to correlate the releases so that everyone would benefit and no one would be hurt unduly through abnormal releases. It would not be necessary to have abnormal releases.

We feel that Arrow lake, with no power production, will be a continuing source of revenue to the province of British Columbia because it is a great energy source. It is available. The lake would refill almost every year and there would be a constant amount of energy available for energy production downstream. In our opinion, Canada would share in the revenue from that energy production for the physical life of the dam.

Mica creek has less indirect effect on our operations because the Mica water would be re-regulated in the Arrow lakes system in any event. The important part of the Mica under the arrangement of the treaty and the protocol is that it will be paid for on completion. The major capital involved in the construction of a hydroelectric plant would be the capital involved in building it. The operating expenses involved are in the fixed charges. Obviously with the Mica dam paid for—I understand the money available will install half the generation—one has a very excellent resource for Canada and British Columbia. The incremental power must be cheap; the cost is paid for.

The Mica reservoir also sets up the downstream plants at Downie and Revelstoke canyon with the reservoir behind it to produce firm power. Therefore, there is a great resource resulting from the Mica project and the possible projects downstream.

Duncan lake is upstream from the Kootenay river plants and will fill an important place in Cominco's future power requirements under its expansion program. We indicate that under the optimum use of Duncan storage in its early years, the operation would increase the firm energy capability on the Kootenay river plants by some 63,000 kw. Duncan has a flood control aspect situated above Kootenay lake and in territory which would not cause much dislocation.

The Libby project is, we consider, of the utmost importance to southeastern British Columbia and to the operations of Cominco. Not only would there be a substantial improvement in the firm energy capability of the present Kootenay river plants, but the stream flows would be improved to the extent that further development of the river would be practicable.

With the Canal plant, described in the international Columbia river engineering board report, and the fifth unit at Brilliant the effect of Libby plus Duncan would be to increase the firm energy capability of the Kootenay river below Nelson, British Columbia by 268,000 kw. calculated through the 42-month critical period for recorded flows similar to the period from September, 1928 to February, 1932. For this critical period the benefit credited to Duncan would be 58,000 kw.; and the benefit from Libby, therefore, would be 210,000 kw.

This increase in power potential resulting from the Libby project is of the utmost importance to Cominco for its future industrial expansion and for the economy of southeastern British Columbia.

As already mentioned, the importance of Libby is that it completely protects the lower reaches of the Kootenay river from major flooding.

In conclusion, we say that Cominco is satisfied that the projects which would come into being on implementation of the treaty would form the nucleus of a comprehensive development which would provide adequate control of the Columbia river system without requiring the diversion of Kootenay river away from existing power installations and existing industrial developments, which are substantial.

These projects would materially increase the power potential of the Kootenay river downstream from Nelson and thus not only provide for expansion of industry, but also secure the commercial and domestic power requirements of the growing population of southeastern British Columbia.

The control which the treaty projects would provide, much of which would be effective within a matter of five years, would serve to eliminate the threat of major floods, such as occurred in 1894 and 1948. This is of the utmost importance to a population residing largely in the river valleys of a mountainous country.

The advantages of the treaty projects would not be confined to the people and the industry of southeastern British Columbia, but would have immediate and long-range beneficial effects, both direct and indirect, on the economic well-being of British Columbia and Canada.

The treaty and the protocol which have been presented to parliament represent the result of years of study and negotiation and, in our opinion, constitute a settlement which would be advantageous and fair to both Canada and the United States.

It is respectfully submitted that the treaty should be ratified.

The CHAIRMAN: I have a list of those members who have indicated they wish to ask questions: Mr. Byrne, Mr. Cadieux, Mr. Herridge.

Mr. RYAN: Mr. Chairman, on a point of order before questioning commences, some briefs have already been read into the record in total. Because it was found that this was taking too much time, we determined the other course we have been following. However, if it is not the practice to file these later briefs as appendices to the minutes and proceedings each day, I would like to move that this practice be adopted.

I would add, Mr. Chairman, that I would move this be adopted particularly in respect of this brief. I think it would be a good thing to have this as an appendix to the minutes and proceedings of this day because it is an excellent brief.

The VIVE-CHAIRMAN: I sympathize with Mr. Ryan's viewpoint on this particular brief, but there are one or two briefs that we have received in the last couple of days which, to say the least, are exceedingly lengthy. If we follow this practice with one brief I do not think we can follow another practice with other briefs. If we are all in possession of these briefs I think that would be sufficient. To have all these appended would make it very difficult for the printer. This particular one, I agree, is very brief and very concise, but some of the others we have received are very long indeed, some are even of the order of 100 pages. I wonder if it is wise to make a precedent.

Mr. LEBOE: I think we have had a fairly good coverage of this brief and I see no reason why it should be incorporated as an appendix.

Mr. STEWART: On a point of order, Mr. Chairman, it seems to me that this is a question which could very well be referred to our steering committee, because it obviously has ramifications with regard to cost and so on which ought to be examined fairly carefully. At the moment, however, we have a witness whose time is now available to use, and I do not think we should consume that time by discussing other questions.

Mr. HERRIDGE: The committee having decided in its wisdom not to read the brief, the committee then decided by implication not to incorporate it.

Mr. KINDT: That would be my view.

Mr. HERRIDGE: If we include one brief we must include all.

Mr. RYAN: I will withdraw my motion but I think the matter should be brought up again with the steering committee.

Mr. BYRNE: Mr. Anderson, you gave a general outline of your qualifications as a hydro man and Mr. Wadeson has done so too.

Will you tell us briefly what is the history of the West Kootenay Power and Light Company? How long has it been managing the power operations for Consolidated and on its own behalf?

Mr. ANDERSON: West Kootenay Power and Light Company dates from 1897. The first plant was built on the Kootenay river at that time. Other installations were made in the period around 1915-16, particularly when zinc production was required during the first world war. At that time Cominco acquired the controlling interest in the West Kootenay Power and Light Company because of the necessity of power requirements for processes at that time.

In the years following, as the company expanded and plants expanded additional plants were built on the Kootenay river in 1923, 1928, 1932, 1944 and then the Waneta which commenced operation in 1954.

The power production increased from something in the order of 3,000 or 4,000 kw. up to the present day figure of close to 600,000 kw.

Mr. BYRNE: Mr. Anderson, during General McNaughton's presentation it appeared to me that he sought to create the impression that we could not expect to obtain co-operation by the United States in regulating the stream flow; that is, in order to enhance our power generation in Canada.

To support this contention I would like to read to you what General McNaughton had to say. This appears on page 6 of his brief and it appears again in the minutes of the external affairs committee on page 549:

It is wise not to be under any delusion as to what Canada may expect from the exercise of this authority by the United States.

That is, the authority to control its own flows.

For example, on the Pend d'Oreille where the United States is already in control, physically as well as jurisdictionally, of the upstream storage the flows at Waneta are so reduced in the late summer in the interest of United States system benefits that only one of these Canadian units out of a total of four (three of which have been installed) can be operated.

Do you consider the system on the Pend d'Oreille will be in any way related to the probable releases from the Libby dam when or if it is constructed?

Mr. ANDERSON: When we were going into the construction of the Waneta plant we were quite aware that there would be no control for our benefit from the United States, nor did we expect it. Obviously, the United States had built that storage at that time for Grand Coulee before we had anticipated even building the Waneta dam. As a private corporation, building the Waneta plant with 200 feet of head, we could hardly expect at that time that we could ask the United States to regulate to 20,000 c.f.s. for the benefit of our plants when they were regulating for plants totalling 1,200 feet of head.

This treaty involves British Columbia and Canada as a whole. It is an over-all program. Through agreement in regard to co-operation and co-ordination, we think it is entirely feasible that releases from Libby can be such reasonable releases that we can use them to the full advantage of British Columbia and Canada.

Mr. BYRNE: In other words, there is little basis for comparison of the two operations. The United States had complete control.

Mr. ANDERSON: Yes. We were aware, of course, that at some stage when we required it for the third and fourth units, an interconnection was the natural solution for this problem. That has now been done and it is a very sensible thing to do. This has made a very firm resource out of the Pend Oreille river although the storages and releases are under the control of the United States.

Mr. HERRIDGE: May I ask a supplementary question?

Mr. Anderson, what assurance can you give the committee, after reading this treaty and protocol, that the United States authorities will make releases from Libby to suit your convenience?

Mr. ANDERSON: I would ask Mr. Wadeson to answer that.

Mr. BYRNE: Mr. Chairman, I am following along this line of questioning. The question is already anticipated. I am asking this question and I think I have the right to go ahead.

The CHAIRMAN: If that is the question you are about to ask, we can treat this as the supplementary and it will not do disservice to your line of questioning.

Mr. HERRIDGE: It is a very important point, Mr. Chairman.

Mr. WADESON: The assurance we can give you, Mr. Herridge, is that as a practical matter among practical operating people, we know within certain ranges what the releases from reservoirs must be. Our experience is quite

wide in this regard. After all, we have been operating the Waneta plant and stream flows, which are controlled almost entirely for the benefit of the United States power pool, for the last ten years.

We have used that as a very effective power resource. The reason we are able to use it is that, as I say, we are able to calculate within certain ranges what the storage releases will be. Obviously the United States are not going to use this storage release as a weapon against Canada; they are going to use it for their own power production. When Libby comes in, our situation is even better, because at that time there is a very wide flexibility built into the system, and a release from one reservoir might well be substituted for a release from another without any loss of power to the United States system.

As you know, the Canadian entity will have a voice in setting the operating program. Therefore, having regard to these releases in the headwaters of our stream, we, as practical operating people, will make very good use of them.

Mr. HERRIDGE: Does the Canadian entity not have the final decision in respect of releases from Libby?

Mr. WADESON: No, we do not need it. This matter of storage release is not, I hope, ever to be laid down by a rigid rule. We need some tolerance in our operations. If it were specified for example that there was to be a minimum flow released out of Libby, it would not suit our purpose at all. If we are to specify that there is to be a reasonable release out of Libby, then we can set our performance, because the flows vary on other streams. We want to have this flexibility left there so that we can balance our operations by reason of the diversity of flows and releases.

Mr. BYRNE: I would like to ask Mr. Anderson, carrying on this question of the interrelationship between the Pend d'Oreille system and the Kootenay storage, if Mr. Anderson could tell me what date Cominco applied to the International Joint Commission for permission to construct a dam at Waneta which would have the effect of flooding a couple of acres in the United States?

Mr. ANDERSON: Yes. Cominco made application to build the Waneta dam on April 30, 1951.

Mr. BYRNE: April 30, 1951; had you undertaken a large expenditure previously to that?

Mr. ANDERSON: No, not prior to the application. We had talked with contractors and we had worked on design; but at the time of the application we had spent no particular amount.

Mr. BYRNE: There is another matter I would like to clear up with respect to General McNaughton's submission. On page 549 of the external affairs committee minutes you will find that General McNaughton had this to say:

Mr. McNAUGHTON: ...Cominco went ahead and developed Waneta with the thought that there was no possible reason why they should not build it on their own with the local authorities. When they started construction they discovered that running into the head pond was a small creek known as Cedar creek that had its origin in the United States on some property that was owned by the national government. Despite the fact that there would be flooding across the line into this property, Cominco went ahead and started construction and spent a good many million dollars on it. Then the United States raised the question of the flooding across the boundary which is forbidden by the Boundary Waters Treaty, article V, and Cominco was told they could not do that.

This statement appears to indicate that Cominco was asking for regulation of the flow from the United States storage. Did Cominco at any time appear before the commission to seek regulation of the United States storage?

Mr. ANDERSON: No, we did not.

Mr. BYRNE: Could you tell me precisely what Cominco was asking for in their application to the International Joint Commission:

Mr. ANDERSON:

(II) The applicant proposes, if approval of the construction of the dam is granted by the honourable, the International Joint Commission, to hold, by means of the dam, the upstream pondage at an operating level which may vary between elevation 1,515.75 feet and elevation 1,495.75 feet, Geodetic Survey of Canada datum. The ponded reach meets the international boundary on Cedar creek about 45 feet above the bed of Cedar creek. The portion of Cedar creek in the United States which will be affected by the pondage upstream from the dam lies within a narrow canyon or valley having precipitous banks. The flooded area of the creek in the United States will not exceed three acres. The pondage becomes gradually modified as it extends upstream on Cedar creek and will extend into the state of Washington for a distance of only approximately 900 feet.

(12) Arable lands will not be affected by the proposed works and the applicant submits that the proposed works will not have any injurious effect on any interests in the United States or any state thereof.

(13) As the proposed works involve the placing of an obstruction in waters at a lower level than the international boundary, which will affect the level of waters above the boundary, that flow across the same, the effect of which is to raise the natural level of waters on the other side of the boundary, it is the opinion of the applicant that your honourable commission has jurisdiction in the premises under the terms of article IV of the Boundary Waters Treaty, dated the 11th day of January, 1909.

Petition

WHEREFORE the applicant applies to your honourable commission for an appropriate order in the premises expressly approving the construction, maintenance and operation of the said Waneta dam and reservoir.

Mr. BYRNE: You did not ask for regulation of the United States flows, nor did you ask for an order preventing diversion of the Pend d'Oreille river in the United States before reaching Canada?

Mr. ANDERSON: No.

Mr. BYRNE: All you were asking for was the right to build the dam.

Mr. ANDERSON: That is right.

Mr. BYRNE: And to use the river flows as they came down?

Mr. ANDERSON: Yes sir. We had to go before the International Joint Commission because there was a small acreage flooded across the international boundary.

Mr. BYRNE: Could you tell the committee when authority was finally given by the International Joint Commission?

Mr. ANDERSON: Following the application, hearings were held. One was held at the site of the Waneta dam on July 12, 1951, and another was held at

the Coulee dam in Washington on July 13, 1951. Following these hearings we were, as I recall it, assured verbally that there appeared to be no difficulty whatsoever. However while there was a very small matter of some two acres affected in one particular area, we could expect an order to be forthcoming at an early date.

Now, Cominco at that time had increased power requirements, and since the Waneta project was just a project that had not been constructed by Cominco up to that time, involving in the early stages a total of \$35 million, and requiring almost up to three years for construction, it was necessary to get on with the job as quickly as possible. For that reason, following these public hearings, and as we considered we had assurance of both sections of the International Joint Commission that there would be no difficulty about an order, we did proceed to spend money and get going in the river because we wanted to get in after the flood period of 1951.

The application was in April, and the flood period is May, through June and July, and we wanted to get into the river with our building without losing another year of construction. The order did not come through promptly. In fact it was about one year later before we got the order. In the meantime Cominco had spent possibly up to \$1,000,000 without an order.

Mr. BYRNE: That was in between times?

Mr. ANDERSON: Although we went ahead in good faith.

Mr. BYRNE: Between the time of the hearings when you were assured, what was your reason for not asking for control of the flow, or the right to abrogate, that is, for the United States to abrogate their right to divert?

Mr. ANDERSON: The right to divert has always been in the Boundary Waters Treaty, under article II, I think it is.

Mr. BYRNE: This other question must have arisen in the discussion with the International Joint Commission without any submission made on your behalf.

Mr. ANDERSON: No, at the time of our application and the hearings, as far as Cominco was concerned, the matter of diversion was not in there. This must have been something which came up in the commission, as I understand it.

Mr. BYRNE: Mr. Chairman—

Mr. KINDT: On a point of order, some of the rest of us would like to take a little time and the hon. member asking questions has used up all of his time.

The CHAIRMAN: Well, now, I do not quite understand that remark, Mr. Kindt. Is it the thought that members should be restricted to a time period?

Mr. KINDT: He should not monopolize the time of the committee. These witnesses, I assume, are here only this morning, and I would like to ask a few questions, too.

Mr. RYAN: On this point—

The CHAIRMAN: Mr. Kindt, I would point out that Mr. Anderson and Mr. Wadeson will be available this afternoon.

Mr. BYRNE: On that point of order—

Mr. KINDT: I will not be here.

Mr. BYRNE: We have heard long dissertations from the hon. members. I simply am directing questions to the witness and I am sure I should have at least another few minutes.

The CHAIRMAN: I do not wish to cut short any member of this committee.

Mr. RYAN: On the same point, I think it should be mentioned that Mr. Byrne probably is the best qualified man to be questioning on this because he is the member for Kootenay East and is familiar with these plants.

Mr. BYRNE: I have been mentioned as the representative for the Consolidated Mining and Smelting Company, so I must have some qualifications.

I would like to refer to page 14 of the Cominco brief and ask if you could reconcile the 210 megawatts of firm energy benefit from Libby—that is in the construction of Libby and releases from Libby—with General McNaughton's statement which appears on page 548 of the Minutes of Proceedings and Evidence of the committee. He says:

One cannot make contracts with customers unless you can implement them. When the whole thing has been made subject to an agreement, as it is in the protocol and in the treaty, the decision rests with United States and the United States will not have to assist unless there will be damage resulting to them.

I think there is a misprint there, but that is the way it reads.

Therefore the privilege is useless. In fact, this is not firm power under the definition.

Mr. ANDERSON: I would like to refer that to Mr. Wadeson.

Mr. WADESON: I think I have answered that question in part when I spoke of the fact that we had been operating the Waneta plant without a formal arrangement with the United States authorities for ten years, and made it a useful energy resource. The same thing must apply to the Kootenay river plants when they are able to use the releases from Libby. I said the United States people are going to release Libby storage in such a way that it benefits them. Our own entity—British Columbia Hydro—presumably will be associated with the United States Hydro in developing the operating program.

I mentioned too, that the system will be extremely flexible, and therefore British Columbia Hydro will be looking after Canadian interests and substituting releases, possibly from High Arrow, to complement releases from Libby so that the Libby release will be more uniform. In this regard, I might say we have calculations of 20 consecutive years of water records and we have calculated system capabilities at various levels of installations. At the level of installation when Libby comes into the system, we were able to show that Libby releases into Kootenay lake can be so adjusted that the inflow is almost uniform at 20,000 cubic feet per second.

As I mentioned before, we do not want a uniform inflow or uniform outflow; we want to exploit the diversity between the two streams. This is an effort to show the extreme flexibility which existed in the matter of storage releases at that time, and show that people getting together to devise and operate a program, if they are people of good will, certainly could arrange things so that we would get optimum benefit.

Mr. BYRNE: In that co-operation, what has been your experience regarding the United States entities in the past?

Mr. WADESON: Excellent. We are members of the northwest power pool which is an association of about 18 generating interests, principally United States. British Columbia Hydro and Cominco, or West Kootenay, are Canadian members. We hold operating committee meetings every two months. I am Cominco's representative on this committee. Every two weeks we hold a conference telephone call. Everybody is completely free in the matter of supplying information and technical operating data.

In the matter of one of the members getting into difficulty, everybody else will do what he can to help him. Do not misunderstand me; I am not saying that anyone will jeopardize his own firm power output. However, outside of that range, wherever it is possible to help somebody else without hurting himself, then all the members are willing to do so. We have just done

a very similar thing for Bonneville, as a matter of fact. My counterpart in Bonneville called me up one morning and said they had withdrawn Grand Coulee reservoir to the level at which they were going to stop the logging on it. There was not very much I could do, but at that time we had about half a foot of storage in Kootenay lake for which I had no power use, and which I was going to spill at the end of the week. I simply told him I will spill that right now for your benefit. It did not help very much, but it did keep them going for a couple of days. We do things similar to that at the operating level all the time.

Mr. HERRIDGE: You said they would not jeopardize their firm power. Would they jeopardize their peaking power?

Mr. WADESON: That is not a problem in the northwest power pool. Peaking power involves drawing down head ponds and having enough generators for that. The northwest power pool is overinstalled with regard to peaking. At some times of the year it is necessary for generating energy to have a number of generators up at the head water reservoir, and at other times for generating energy it is necessary to have a number of generators on the main stem of the river. For this reason, peaking is not a problem. Our concern in the operating program is with the firm energy availability.

Mr. BYRNE: Mr. Chairman, Mr. Anderson in his outline of his brief mentioned the application for an interconnection with Bonneville power administration. Was this application made some seven or eight years ago? Do you recall that?

Mr. ANDERSON: We commenced discussing it.

Mr. BYRNE: What was the purpose of this?

Mr. ANDERSON: We had to have some means of compensating for the low flows in the Pend d'Oreille river as controlled by the United States people in their release of stored water. In August and September, particularly, flows were down to a low point. If something could not be put in to compensate for it, there would be a loss of production in the Cominco plants, so, I, as a representative of Cominco, approached the Bonneville power administration with a plan to see if we could interconnect with their system and interchange energy on an equal basis; in other words, just exchange kilowatt hours. As I say, we approached Bonneville to commence this and we carried on over a period of years. We had no difficulty in negotiating it with the Bonneville people; they were most co-operative. We did have difficulty though on our side of the line because we had to deal with two governments and changes in government and, of course, in those early stages the national energy board had not been set up.

Mr. BYRNE: Of course, I think it has been established that it was the West Kootenay Power Company which approached the Bonneville power administration, which is the United States entity, for this interconnection.

Mr. ANDERSON: Yes.

Mr. BYRNE: I got the impression from General McNaughton's submission that through devious means in getting us to accept this interconnection the United States entity saw a possibility of getting complete control of the storage on Mica lake. At page 553 of the external affairs minutes General McNaughton had this to say in respect of the interconnection:

What would have happened in this request for an interconnection agreement which would have given them power in the late summer—I think it was August, September and October—when the United States were cutting off the flows of the Pend d'Oreille to fill up the Hungry Horse Reservoir, would have been that it would have given them some

power from the Bonneville system, where there was a great surplus at that time, in return for Bonneville getting the effective control on the regulation of Kootenay lake during the winter-time when the extra storage for winter power is four or five times as valuable.

Have you any comment on the question of the Americans having obtained effective control of the Kootenay lake storages?

Mr. ANDERSON: This simply is not true and I am going to ask Mr. Wadeson to elaborate on this.

Mr. WADESON: First, Mr. Chairman, let me speak of the type of control. I have noticed in the questioning there seems to be the idea that we are receiving lower flows on the Pend Oreille as a result of this storage. Now, this is quite true in August and September; the flows which we receive normally are somewhat less than would have occurred under natural conditions. It is not uncommon for the flow to go down to 5,000 cubic feet per second but it will not stay at an average rate of 5,000 cubic feet per second for a whole month. Occasionally we have had spot readings of flows as low as 4,000 cubic feet per second. But, since we have been operating Waneta we never have had a flow as low as occurred naturally before all the storages were in.

I believe—and I am speaking from memory—that the minimum flow of record under natural conditions on the Pend d'Oreille river was 2,500 cubic feet per second and that is far less than an amount required to run a turbine, which requires 6,000 cubic feet per second.

But, to revert to the main part of your question, so far as Bonneville getting control of the storage releases in Kootenay lake is concerned, let me be quite emphatic and say that nobody controls Kootenay lake but us, under the authority of the Kootenay lake Board of Control, which is a creature of the International Joint Commission. If you accept the thesis that because Bonneville has in effect some storage consigned to Kootenay lake you must also concede later on in the season when we have storage consigned to Grand Coulee we must control Grand Coulee, and I think Mr. Keenleyside would take exception to the thought that because I have several millions of kilowatt hours consigned to the Watschan reservoir that I control it.

Mr. BYRNE: If I recall the statement correctly, Mr. Bartholomew said last evening that practically all the releases from Libby would be made in the winter months and they were not going to be prolonged over a long season. Do you feel you have sufficient control of operations at Mica?

Mr. WADESON: I was at the committee proceedings yesterday and, as I understood that remark, it was in respect of operating the Libby project for peaking. Now, as we understand daily peaking in the northwest power pool—

The CHAIRMAN: Do you have a supplementary?

Mr. DAVIS: Let him finish.

Mr. WADESON: —we have a heavy load for 16 hours and a light load for 8 hours. I have made a calculation that if the Libby project was operated at full gate, which is the maximum capability of the turbine for 16 hours and then shut down for 8 hours, and the water was introduced immediately into Kootenay lake, this would cause only a variation in the lake level of one-tenth of a foot. No, this calculation did not take note of the fact that there is, in effect, possibly 100 miles of river channel between Libby and Kootenay lake, so the result would be far less than one tenth of a foot of a daily fluctuation if what we call daily load factoring operation was used to the maximum at the Libby project.

Mr. PUGH: I have a supplementary.

The CHAIRMAN: Would you proceed, Mr. Pugh?

Mr. PUGH: You heard the evidence yesterday; I sort of gather that Libby could be so used that it would ruin your power chances or opportunities from the Kootenay either by withdrawal of water for one or more reasons or for peaking. Is there any danger in that connection?

Mr. WADESON: No, sir. We are very much in favour of the Libby development for the reason that it gives us over 5 million acre feet of storage in the headwaters of our streams, which cannot but be beneficial to us. As long as somebody is willing to regulate one of our streams we are bound to be helped in some way. I cannot imagine any operator using that storage as a weapon against us; this would be very ridiculous. But, even if it were released without any special thought of our benefit we still would gain some measure of benefit from it.

Mr. PUGH: I understand from your brief there would be an increase of firm energy on the Kootenay river plants of 268,000 kw.

Mr. WADESON: An increase of about 210,000.

Mr. PUGH: Did you say about 210,000?

Mr. WADESON: Yes.

Mr. BYRNE: Mr. Chairman, I have one final question to ask in respect of power generation.

I should like to ask Mr. Anderson whether the West Kootenay Power Company or Consolidated Mining and Smelting Company if they received a licence would be prepared to construct the canal project based on requirements and, of course, the so-called hypothetical use of the Libby dam? Would you be prepared to make such an investment under present circumstances?

Mr. ANDERSON: There is no doubt in our minds that if the requirement was there, and we had the privilege and a licence to build the Canal plant, we would built it because it is right in the centre of our other plants and would tie in very well.

Mr. BYRNE: You see no basic reason to change the treaty in order to facilitate such a project?

Mr. ANDERSON: No.

Mr. HERRIDGE: I should like to ask a supplementary question. Could Mr. Anderson tell the members of this committee when he expects the Canal plant would be built?

Mr. ANDERSON: I cannot answer that question. This would depend on the power load growth. It would also depend on Cominco's expansion and the area expansion. We try to prognosticate effectively five years ahead but if you try to do so 10, 15 or 20 years ahead it is rather difficult.

Mr. HERRIDGE: You certainly made the best of the Brilliant dam.

Mr. ANDERSON: The Brilliant dam was constructed as a war measure to increase metal production.

Mr. HERRIDGE: You obtained the complete cost of the dam, which was actually paid by the people of Canada, because through Mr. Kellock or Mr. Illsley you were able to build that dam with accelerated depreciation and it was not anticipated to be used after the war.

Mr. BYRNE: This is getting far afield.

Mr. STEWART: I think the witness has a right to answer the question. The question is on the record and is very provocative.

The CHAIRMAN: I do not think this is a question. It appears to me to be an assertion. Do you wish to make any comments?

Mr. ANDERSON: I do not think this subject is relevant to the matter at hand.

Mr. HERRIDGE: Is the statement true, Mr. Anderson?

Mr. ANDERSON: The statement is not true.

Mr. HERRIDGE: The statement is not correct?

Mr. ANDERSON: The statement is not correct.

Mr. BYRNE: I think with that finale I shall conclude my questions.

Mr. ANDERSON: I should like to answer one point here. I forget how Mr. Herridge put the statement, but I believe he referred to accelerated depreciation. It is quite true that the company received accelerated depreciation. You have referred to this situation before, Mr. Herridge, and it was answered very effectively in the *Trail Times* some years ago. Since that time you have not referred to it again. I would suggest you read that article because a full explanation was given.

Mr. HERRIDGE: I will produce the agreement between Consolidated Mining and Smelting and the government of Canada.

Mr. ANDERSON: You might be interested to know that the accelerated depreciation was given on the assumption that the plan would not be operated after the war.

Mr. HERRIDGE: That is right.

Mr. ANDERSON: If the plant operated the federal government would collect a tax on production, and that has been done ever since the plant continued to produce. I venture to say that if Consolidated Mining and Smelting had not accepted the accelerated depreciation and continued normal depreciation it would be much further ahead today.

Mr. CADIEUX (*Terrebonne*): Mr. Chairman, I just have one short question to ask Mr. Anderson. In his opening remarks yesterday, Mr. Bartholomew quoted from what he termed the bible. It is the United States army engineers' report of 1958, which, as I understand it, is a complete survey of the area with which we are concerned. This quotation was to the effect that the anticipated growth in consumption of power in British Columbia would be very slow in the foreseeable future. Would you agree with this statement?

Mr. ANDERSON: Mr. Wadeson is more familiar with powder growth in the area.

Mr. WADESON: I do not consider that it is slow growth when you consider it as a percentage of our total load. Our growth, particularly in the lower mainland of British Columbia, is picking up again. The average over a ten year period has been approximately the same as the growth in any other part of the country. However, in the interior of British Columbia the growth is as large, as a percentage, but it is small in actual numbers because we started with such a small base.

Mr. CADIEUX (*Terrebonne*): Would this growth have relation to the growth of the population, for example?

Mr. WADESON: Yes.

Mr. CADIEUX (*Terrebonne*): Is it a fact that as of 1958 and onwards the growth in population in British Columbia has been approximately of the order of three per cent as against about two per cent for the rest of Canada?

Mr. WADESON: I do not recall the actual figures, sir, but I believe that is approximately correct.

Mr. CADIEUX (*Terrebonne*): In your own brief you say that you are going to spend \$65 million in expansion over the next seven years. That would indicate to me that you believe there will be an increased demand.

Mr. WADESON: We do believe that to be so.

Mr. CADIEUX (*Terrebonne*): Then your answer to my earlier question indicating that you believe that anticipated growth consumption of power is going to be slight in the foreseeable future should be changed; is that right?

Mr. ANDERSON: In respect of industrial growth a company like Consolidated Mining and Smelting deals with big blocks of power at a time. During a certain period there might well be little or no growth. The long term increase in power used by Cominco is something of the order of probably six per cent compounded, up to the present time. There have been certain years during which this has been higher, while in some years it has been lower. Speaking of public utilities, in the west Kootenays they have not for 10 years been below about six per cent increase compounded per year.

Mr. CADIEUX (*Terrebonne*): That certainly is above the average?

Mr. ANDERSON: Yes, it has been above the average. There have been very abnormal load growths as high as 10 per cent and in one year as high as 18 per cent. At the present time it is approximately six per cent.

Mr. LEBOE: Mr. Chairman, I should like to ask a supplementary question. Do you believe that the continued reduction in the cost of electricity in British Columbia, which has obviously taken place in the last three or four years, will tend to increase the growth in power consumption?

Mr. ANDERSON: It is a fact that as the price decreases consumption goes up. There is no doubt about that.

Mr. PUGH: Will there be an increase in the use of power when Pine Point ore comes down?

Mr. ANDERSON: Yes there will be. There will be an addition to the zinc plant for electrolytic plating of zinc from Pine Point concentrates. There will also be an increase to the sulphuric acid plant.

Mr. DAVIS: I should like to ask the witness several questions, the first relating to the sale agreement which is embodied in the protocol. Does the method of selling Canada's share of downstream benefits for a period of 30 years offend your sense of what is appropriate in so far as Canada is concerned, namely exporting power for a period of years?

Mr. ANDERSON: From an operating and economic point of view I think this is a very sensible arrangement. I have always been in favour of finding money to build these projects and paying for them.

Mr. DAVIS: In other words, you agree that to have found the money through a sale agreement prior to the construction is a sound business-like approach to the treaty?

Mr. ANDERSON: I agree.

Mr. DAVIS: There are several elements in the protocol and I should like to refer to one related to price. The price of the downstream benefit power is determined before the treaty is ratified. The treaty previously stated that price would be determined afterward. Would you regard this as an improvement in the treaty?

Mr. ANDERSON: I do.

Mr. DAVIS: Do you regard it as a distinct improvement?

Mr. ANDERSON: Yes, I think you now know where you are going.

Mr. DAVIS: In respect of Libby and its effects on the power output of the west Kootenay plants,—I am concerned with the degree of firmness of this power—another heading in the protocol has to do with 200,000 kilowatts of additional energy available on the west Kootenay plant. I think the protocol

in a sense, is an affirmation of the fact that there will be at least 200,000 kilowatts of additional energy available. Questions have centred around the firmness of this energy. Would you regard this 200,000 kilowatts as reasonably firm within reasonable operating procedures?

Mr. WADESON: Yes, sir. We are anticipating that sort of increase in the potential power of the west Kootenay region.

Mr. DAVIS: I have the impression that you favour the development that is embodied in the treaty because the waters continue for some tens of years anywhere in the natural channels and you are able to produce additional power on the existing plants, or perhaps on a new plant, which are close to your principal load centres. This produces more power close by and cheaper power than the alternative development which involves the diversion of the Kootenay. Is this correct?

Mr. WADESON: Yes.

Mr. DAVIS: In other words, your immediate requirements are better suited in this way?

Mr. WADESON: That is true.

Mr. DAVIS: Would you say the requirements of the Trail-Nelson area are always better served by a program involving the full development of the Kootenay staying in its bed as opposed to diversion?

Mr. WADESON: Yes, I think that is a fair statement. Our concern with diverting the Kootenay into the Columbia and generating at stations far north of our present power complex is that in the initial stage, where we first would have to go to those northerly power plants to get a block of power, that block presumably would be quite small in comparison to the total generation out there; it might be in blocks of 20 megawatts, 30 megawatts or 50 megawatts, or something of that order. Now, if we had to go up to Mica for example, 250 miles north, for a small block of power such as 50 megawatts, the initial unit cost of transmission would far outweigh any cheap incremental power that could be produced up there.

Mr. DAVIS: Would you agree with the submissions which have been reproduced in the white paper and elsewhere that general incremental cost of power over the west Kootenay plants, including this new Canal plant, would be of the order of two mills per kilowatt hour?

Mr. WADESON: Yes.

Mr. DAVIS: And if you did not have this opportunity to develop local power at that cost you would have to reach much further north, or perhaps import power from British Columbia Hydro at several times that price.

Mr. WADESON: Conceivably, yes. Of course we made no investigations to see what the alternative costs would be.

Mr. DAVIS: In any case the costs may not be as conducive to metallurgical development as would be the case with the Libby benefits over the west Kootenay plants. Is that correct?

Mr. WADESON: That is our position.

Mr. DAVIS: Concerning the claiming of availability of this power, the power under the present treaty arrangements could be available within five or six years, I suppose.

Mr. WADESON: The Duncan would be in effect presumably in four or five years; Libby, as we understand it, could be available in seven years, and these increments of power fit in very well with the expansion program as we have planned now.

Mr. DAVIS: Alternatively, if there were a major diversion of the Kootenay, I suppose power would not be available in five or six years' time?

Mr. WADESON: I do not know. There is nothing in the treaty of course that puts a date on that diversion.

Mr. DAVIS: I would suggest that renegotiation of the treaty might take a few years, as well as the construction program.

Mr. WADESON: Yes.

Mr. DAVIS: I would like to ask you what is your role in Kootenay lake? Do you control Kootenay lake within certain limits?

Mr. WADESON: That is true.

Mr. DAVIS: Could you briefly summarize what this control is?

Mr. WADESON: In 1938 the International Joint Commission issued an order giving certain storage privileges on Kootenay lake. This involves permitting the lake to recede to a level of four feet above zero and holding it at the four foot level until September 1. After September 1 we may increase the level up to six feet. The six foot depth of storage, including bottom storage on the lake, is in the order of 820,000 acre feet. We may hold that storage or use it until January 7, after which time we have to withdraw it to a level of 1744 by February 1, 1742.40 by March 1 and down to zero, or 1739.32 by April 1. A compensation for that storage—and when I say compensation I mean compensation to the lands which border this reservoir, the reclaimed lands at Creston and on the United States side of the line from Port Hill down to Bonners Ferry—we were required to make certain improvements in the channel at Grohman Narrows, which is the outlet of the lake, and the International Joint Commission order prescribes certain flood control measures that we have to take and certain flood lowerings that we have to achieve.

Mr. DAVIS: At whose initiative was this storage capacity set up, at your company's initiative?

Mr. WADESON: We made application in the first place. It was objected to by the reclamation farmers, particularly on the other side of the line, but after the flood of 1938 when they lost a lot of their dikes, they petitioned us to renew the application, and at that time the petition was granted.

Mr. GROOS: I have a supplementary question. In layman's language you are saying you exercise control over the fluctuation of ten feet on the lake?

Mr. WADESON: It is closer to eight feet.

Mr. GROOS: Plus six and minus four, you said?

Mr. WADESON: Plus six, minus two—and minus two is really stretching it.

Mr. DAVIS: When might the principal discharges be made from the Libby throughout the year, and how might that be countered by the operation of the Kootenay lake?

Mr. WADESON: Releases from Libby can be expected through the fall and winter months until the following spring, and of course we have to recollect that at that stage in the development the critical storage period will be about 42-month period, so that it is not quite true to say that they will be confined to the fall, winter and early spring months. However, these could be the principal releases, and because of this 800,000 acre foot regulating capacity, we could adjust the Libby releases, I am sure, to suit our convenience to a large extent particularly if we have reciprocal arrangements with the interconnected system so that we can interchange energy with them and interchange storage releases from other reservoirs. This is the secret of the whole thing, complete freedom of interchange.

Mr. DAVIS: I want to ask a question which has to do with energy interchange. I think you have alluded to the drawing down of different reservoir

depending on circumstances and to the fact that this is a co-operative activity. But complementing this, and to some extent mixed up with it, is the utilization of generating plants in different areas. One can interchange power as well as water.

Mr. WADESON: Yes.

Mr. DAVIS: So one has two areas of flexibility here and can accommodate a draw down, on Libby, for example, which may be to the advantage of the United States and which may end up by being of even more benefit to yourself in an over-all arrangement. Is that true?

Mr. WADESON: Yes. I think I understand your question to be that we could, for example, overgenerate on the Kootenay if we had surplus release from Libby, and that we could transmit that power to the United States for storage in one of their reservoirs.

We contemplate doing this at the end of this year with the interconnection which will be closed at that time.

Mr. HERRIDGE: It is now 25 minutes to one. I suggest that we adjourn until four o'clock. We have to get our work done.

I move that this committee adjourn until four o'clock and that Mr. Davis can continue at that time.

The CHAIRMAN: I would indicate to you that at this stage I have four names on my list of members who wish to ask questions following Mr. Davis.

Mr. DAVIS: I would be about five more minutes.

The CHAIRMAN: Then you, Mr. Herridge, are next on the list.

Mr. DEACHMAN: Perhaps Mr. Herridge would agree to Mr. Davis finishing now.

The CHAIRMAN: We normally sit until one o'clock.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Not normally, Mr. Chairman. That has slipped in of late. Normality seems to disappear very rapidly in this committee.

The CHAIRMAN: Do I detect a note of bitterness there, Mr. Cameron?

Will you withhold your motion, Mr. Herridge, in the hope that Mr. Davis will have completed his questioning in a short time?

Mr. HERRIDGE: Yes.

Mr. DAVIS: I have a question to put to either Mr. Anderson or Mr. Wadeson.

It has been contended that under the treaty there are certain peaking power advantages which the United States may enjoy as a result of these storages upstream in Canada, but which are not discovered in the formula of the treaty and in which we do not share; or to put it in another way, that storages upstream in Canada may eventually be operated in such a way under the treaty that they create capacities in the United States from which we have to benefit under the treaty.

Have you any comment on that plane?

Mr. WADESON: I am not sure, Mr. Davis, whether this is a matter of semantics or not, but our concept of storage is that storage provides energy. It is not possible, for example, to release storage from the Arrow lakes—which is very close to the United States border, within a matter of 20 or 30 miles—in such a way that it will arrive at all the United States plants on the main stem of the river simultaneously.

The peak occurs at a certain hour or over a certain range of hours during the day, but the time of travel is a matter of days, not hours, from the Arrow lakes to the lowest plant on the main stem, Bonneville. Therefore, our concept of peaking from storage just does not match that assertion.

Mr. DAVIS: I have one final question which has to do with the general operations of the Consolidated Mining and Smelting Company in the area.

I gather that a good part of your production—lead, zinc, fertilizers and so on—now move out of the area by rail. I also understand that the rail link north-south up and down the mountain is important. Have you given any consideration to the disruptions which would be caused in your company's operations were sequence IXa to be adopted and the Dorr-Bull river-Luxo reservoir project undertaken? Would this tend to disrupt your over-all operations?

Mr. ANDERSON: The railroad is now moving shipments up that way. There are difficulties caused by the mountainous terrain and the closing of the Coquihalla pass, and so forth. Undoubtedly, there would be disruption of the movement of products. This is a railroad problem.

Mr. DAVIS: But you do say that the bulk of your output from the Trail area goes up that way to join the transcontinental railway systems?

Mr. ANDERSON: Yes.

Mr. DAVIS: It goes through the lake Windermere area and the mountain fringe?

Mr. ANDERSON: As I understand it, all our production is going out in that way.

Mr. DAVIS: I suppose it is also going from Kimberley?

Mr. ANDERSON: Yes.

The CHAIRMAN: We have a motion by Mr. Herridge to adjourn until four o'clock.

Motion agreed to.

AFTERNOON SITTING

TUESDAY, April 28, 1964.

The CHAIRMAN: Gentlemen, I see a quorum. Before we commence questioning Mr. Anderson, it has been drawn to my attention that the publishers of the *International Journal* have submitted a bill for 35 copies of the spring 1963 issue containing an article by General McNaughton on the Columbia River Treaty, which was distributed to the members of this committee. Before this bill may be paid, a resolution from the committee is required. May I suggest a motion in the following terms: that this committee authorizes the purchase of 35 copies of the spring 1963 issue of the *International Journal*, containing an article by General A. G. L. McNaughton on the Columbia River Treaty?

Mr. DAVIS: I so move.

Mr. PATTERSON: I second the motion.

The CHAIRMAN: It has been moved and seconded? Is it agreed?

Motion agreed to.

According to my list the first person to question Mr. Anderson is Mr. Herridge, to be followed by Mr. Deachman, Mr. Fleming, and Mr. Cameron.

Mr. HERRIDGE: Just before we adjourned I addressed a statement to Mr. Wadeson on the accuracy of forecasting. On one occasion the company forecast its requirements with great accuracy, and that was when the Brilliant dam was built, and I said that the Canadian people paid for a good substantial part of the Brilliant dam. Mr. Anderson said my statement was not true.

Mr. ANDERSON: I think I corrected it later when I recognized the fact of accelerated depreciation, and I went on to explain some reasons for it.

Mr. HERRIDGE: I have an order for return on the production of papers in front of me dated May, 1941, which includes a copy of an agreement and correspondence between the company concerned and the government of Canada. There are some 48 pages to it and I do not want to go into it except to say that one answer tabled was to the effect that the cost of depreciation at December 1, 1946, was \$9,575,202.20. Could Mr. Anderson tell us what was the original cost of the Brilliant dam?

Mr. ANDERSON: Mr. Chairman, Mr. Frere, general solicitor for Cominco is here this afternoon and with your permission I would like to ask Mr. Frere to deal with Mr. Herridge's question.

The CHAIRMAN: Would you please come to the witness stand, Mr. Frere. Perhaps you would indicate what your special knowledge is, or your qualifications?

Mr. C. H. B. FRERE (*General Solicitor, Cominco*): Mr. Chairman and gentlemen, I am general solicitor of the Consolidated Mining and Smelting Company of Canada Limited. I have been associated with the company since 1936. I was appointed senior assistant solicitor of the company in 1941, just about the time when the agreement referred to by Mr. Herridge was entered into between the consolidated company and the government. Now, I am not quite sure what Mr. Herridge's question is.

Mr. HERRIDGE: My question is this: do you know—I do not want to take up too much time over this; I mention it because I thought there was some misunderstanding—do you know the original cost of the Brilliant dam?

Mr. FRERE: Perhaps I might answer your question by giving you a little of the background of the construction of the Brilliant dam. The cost of the dam was \$9,845,000. It was built under an agreement with the government which was entered into in April, 1942, under the war expenditures conservation act of 1940. The purpose of that act was to enable Canada to conserve United States funds by expanding its capacity for ammonia and ammonium nitrate.

At that time our company represented to the government that it would not have contemplated construction of the Brilliant plant because we did not see a requirement for the amount of power to be generated at the plant at that time, and that the net return from the plant would be very small. The plant was constructed to increase the production of ammonia, ammonium nitrate, and other products of military significance. It was not a normal expansion of our facilities at the time.

The general manager of the company at that time, Mr. Blaylock, and Mr. Howe arranged an agreement by which the company would obtain accelerated depreciation, and the accelerated depreciation which was paid to the company amounted to \$8,830,000.

The government allowed investors to get back capital more quickly than would normally be the case, because it could not be foreseen what the value of the plant would be in the postwar period. I might suggest that there is nothing unusual in an arrangement of this kind. At the present time there are arrangements with the government for accelerated depreciation of plants in depressed areas. Special allowances are arranged for research. Certainly up to 1962, I understand that the logging and sawmill industry enjoyed accumulated depreciation on its equipment to the extent of 30 per cent per year, which is not the normal depreciation. Mr. Herridge may be familiar with this. I believe he has some interest in logging and sawmill operations.

Mr. HERRIDGE: Up until recent times.

Mr. FRERE: So there is nothing unusual in it, is there? It meant a totally unforeseen use of the plant after the war, because we did not contemplate that

we could use it then. But we are very happy that we could. But it meant a great deal of employment in the Trail area in the operating circumstances that we were able to put ammonia and ammonium nitrate plants to use.

Mr. HERRIDGE: How long was the plant in operation before the war ended?

Mr. FRERE: The plant came into operation in 1944. Construction was started, I believe, in the latter part of 1941, and it took approximately three years to construct it.

Mr. HERRIDGE: That was the point. I thought there was some misunderstanding. So I was quite correct in saying that the people of Canada paid for a good substantial part of the Brilliant dam.

Mr. FRERE: Yes, but I thought that the answer should be qualified by the fact that the people of Canada helped to put in capital plants and equipment, just as in the logging industry. You spent it for logging equipment, but you got it back at an accelerated rate. And all this was given back to Cominco at an accelerated rate.

The CHAIRMAN: I do not want to interrupt you, I wonder if this is relevant to the line of questioning?

Mr. HERRIDGE: The relevance was first of all in respect of the accuracy of the forecasting. We are not blaming anyone. We are all human and can make mistakes. Now, having cleared that up, I would like to address a few questions to Mr. Anderson.

Mr. FRERE: May I add one comment? When you mention mistakes, yes, I think the company made a mistake at the time in asking for accelerated depreciation because my understanding is that we would have been better off because of the high tax rate after the war if we had never claimed for accelerated depreciation.

Mr. HERRIDGE: That is very interesting information. Now I have some questions of Mr. Anderson. Mr. Anderson, when you were presenting your brief, your whole argument was based on the value of this construction in power. That is, you did not give any consideration to the constitutional, sociological, human, recreational, or other values related to this project.

Mr. ANDERSON: I mentioned that it was very advantageous, having that power in the area where Cominco has its industrial plants, for the economy of the area, and that it includes the things which you mentioned.

Mr. HERRIDGE: To a limited extent; but you did not take them into account; it was done purely on an economic basis?

Mr. ANDERSON: Not entirely, no. One cannot say that industrial plants have nothing to do with employment in the area and the sociological, and recreational facilities which go along with it.

Mr. HERRIDGE: Yes, but have you made any studies in that regard; has your company any information in respect of its studies of this aspect of the question?

Mr. ANDERSON: I think these are areas in the realm of the provincial government.

Mr. HERRIDGE: I remember when we were discussing the Kaiser dam before this committee in 1955 both Mr. Bonner and Mr. Paget were most vehement in their opposition to the flooding of the Arrow lakes, and so also were officials of your company at that time. I have a letter written by Mr. W. W. Wadeson, dated November 8, 1955, in which he states:

Storage on the Arrow lakes—

Mr. ANDERSON: Who is this addressed to?

Mr. HERRIDGE: To me.

The CHAIRMAN: This is not evidence you are introducing now; is it?

Mr. HERRIDGE: Yes.

The CHAIRMAN: I thought we had made clear that we would endeavour—

Mr. HERRIDGE: I am laying the basis for a question:

Storage on the Arrow lakes should not be permitted above normal high water levels.

Then it goes on to deal with Murphy creek, and so on. Is it correct to say that your company has changed its opinion with regard to the High Arrow since the time of the hearings on the Kaiser dam?

Mr. ANDERSON: Is this a personal letter to you?

Mr. HERRIDGE: Yes.

Mr. ANDERSON: I take it that it was not written on behalf of the company.

Mr. DEACHMAN: Mr. Chairman, on a point of order, may I ask from what Mr. Herridge is reading? May the rest of the committee share the information with Mr. Herridge?

Mr. HERRIDGE: I am just quoting one paragraph from this correspondence.

Mr. DEACHMAN: I would be very interested, as I am sure other members of the committee would be, to know what Mr. Herridge is quoting from.

Mr. HERRIDGE: I am quoting from an attachment to a letter written to me on November 8, 1955, by Mr. W. W. Wadeson on the stationery of the West Kootenay Power and Light Company Limited.

Mr. DEACHMAN: Would Mr. Herridge like to submit that letter, or are we free to quote from correspondence which we bring to the committee?

Mr. HERRIDGE: I am quoting this as an opinion and asking a question on it.

Mr. DEACHMAN: I would like to know whether or not we are free to come here as members of the committee with correspondence and read it into the record without filing it and making it a part of the evidence or the documents of the committee?

The CHAIRMAN: It is the hope of the Chair that members will not bootleg letters into the evidence when there cannot be cross-examination. Obviously it offends a basic principle. Surely, Mr. Herridge armed with whatever information you have, you can pose your own question.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): On a point of order on this, I would point out that the person involved in this is here and is subject to cross-examination right now. To me this seems to be a logical basis for a question which I assume Mr. Herridge is going to ask with regard to the reason why the West Kootenay Power and Light Company Limited has changed its position since that time.

An hon. MEMBER: Let him ask the question, then.

Mr. CADIEUX (*Terrebonne*): On a point of order, I would like to know whether Mr. Herridge is quoting from an attachment or from the letter.

Mr. HERRIDGE: From an attachment to the letter.

Mr. DEACHMAN: On my point of order, the point made by Mr. Cameron is that because this is correspondence allegedly from the witness to Mr. Herridge, Mr. Herridge is privileged to read it. I do not think any privilege attaches to a document merely because it happens to be correspondence between Mr. Herridge and the witness. To some extent, this is a bootlegging of material into the record, and I would like a ruling from the Chair to the effect that as members of this committee we do not introduce documents which we are not prepared to table and read into the record.

The CHAIRMAN: Does any other member wish to speak to the point of order?

Mr. BREWIN: Mr. Chairman, I am sorry I did not hear the whole background of this matter, but I do think we have to beware of such phrases as the one used by yourself when you used the expression "bootlegging of material into the record". In an inquiry of this sort where we seek to obtain information from almost any source, it may be that the introduction of a letter will lead to some train of examination which may be very, very important. It is true that documents introduced without anybody to support them have very little weight. I hope, however, that we will not get into the question of legal terminology with regard to refusing hearsay evidence, because sometimes something which may be rejected in the light of a strict ruling might be something which would uncover a line of approach which could be very important to us.

Mr. MACDONALD: I do not think it is a question of the hearsay rule, but rather a rule of the house that no member may quote from a document without laying the whole document on the table.

Mr. CADIEUX (*Terrebonne*): I think before we hear the quotation we should hear the letter, and we should know whether the letter says that the attachment is the opinion of the witness. This is what we do not know: it may be that it is an attachment to a letter which is not translating the opinion of the witness.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): If the question is asked of the witness, we shall get the answer.

Mr. HERRIDGE: All I am asking is, has the company changed its opinion in this respect?

Mr. ANDERSON: At the time of this Kaiser dam inquiry, this was entirely a matter of the provincial government. Speaking for the management of the company—the Power Company and Cominco—I can say that the company had no policy in respect of the Arrow lakes at that time in relation to the Kaiser dam. If Mr. Wadeson had some personal correspondence with you as a private citizen, I can say it was not a matter of company policy.

Mr. HERRIDGE: Is it true to say that your company supports the building of the High Arrow dam regardless of the destruction caused to communities, public and private investment, beaches and other facilities along the Arrow lakes, and the inconvenience—in many cases suffering, almost—to many human beings?

Mr. RYAN: That is a pretty unfair way to put a question.

Mr. ANDERSON: I fully appreciate the difficulties of the people being moved and we are sympathetic. We are dealing with a matter involving Canada and British Columbia, and in this case we do support the High Arrow dam.

Mr. HERRIDGE: Regardless . . .

Mr. ANDERSON: Not regardless, no.

Mr. HERRIDGE: You have considered these other factors?

Mr. ANDERSON: We are aware of them.

Mr. HERRIDGE: And the loss of public and private investment.

Mr. ANDERSON: Similar to what happened on the St. Lawrence Seaway.

Mr. HERRIDGE: Not quite the same. In the case of the St. Lawrence they could all move back without any difficulty. They were not flooded out.

The CHAIRMAN: Mr. Herridge—

Mr. MACDONALD: The Chairman might have something to say about that.

Mr. HERRIDGE: I understand that the associated chambers of commerce of southeastern British Columbia recently met. They are very concerned

about the fact that at one time one of the ministers of the provincial government promised to spend the money which would be received for flood control, approximately \$70 million, on rehabilitation, reconstruction, recreational facilities, and things of that sort.

As a result of reply given by Mr. Williston in the legislature to Mr. Harding this \$70 million apparently is going to be used to pay part of the cost of installing the generators in Mica. In that connection I want to quote from the *Revelstoke Review* and then put a question.

I am quoting from the *Revelstoke Review* under date of April 23, 1964, which reads as follows:

Charging the provincial government with a reversal of policy on \$70 million worth of flood control benefits, now slated for the Mica dam, the associated chambers of commerce of southeastern British Columbia is pressing for a return to the original plan of putting the money in trust for improvements in southeastern British Columbia.

This was adopted by a unanimous vote. Does your company support the attitude of the associated chambers of commerce of southeastern British Columbia in this respect?

Mr. ANDERSON: This is entirely a matter involving the British Columbia government. Cominco does not enter into it. That is my only comment.

Mr. HERRIDGE: Now, Mr. Anderson the west Kootenay association of rod and gun clubs under date of May, 1961 have presented a brief to this committee for consideration, which deals with recreation in the Columbia river basin at Kaslo together with multiple use proposals. We recently received this brief.

Mr. PATTERSON: Who received it?

Mr. HERRIDGE: The Chairman of the committee.

In this connection I would like to put this question. With regard to reservoir clearing the clubs insist that all vegetation must be cleared from the present low water level up to 10 feet of elevation above the maximum storage level. And, they go on to say this is an absolute necessity if use is to be made of the reservoir for any purposes mentioned in their brief other than water storage and power generation. I am quoting from page 9 and I would ask do you support the proposals of the west Kootenay association of rod and gun clubs with regard to the clearing of these basins which are connected with this treaty?

Mr. ANDERSON: I have not seen the presentation but I think this is a question which should be directed to the British Columbia Hydro and Power Authority, which is constructing the dam and flooding the reservoir. Cominco has no part in the construction or anything to do with the reservoir; it is a matter for the government and the British Columbia Hydro and Power Authority, and I think your question should be directed to them.

Mr. LEOBE: It has been directed to them.

Mr. HERRIDGE: Yes, it was before and we received a most unsatisfactory answer.

You mentioned this is to the general advantage of Canada and, if this is so, you must have considered as well the question of clearing all reservoirs and access roads.

Mr. ANDERSON: In the case of the Cominco where we had any reservoirs to set up we did the clearing.

Mr. HERRIDGE: Yes, I will give you full credit for that; you have a good reputation in that respect and, on that account, I thought you would use your influence with respect to the requests of the west Kootenay association of rod and gun clubs.

Mr. ANDERSON: We may do.

Mr. HERRIDGE: I hope you do, sir, because they are very concerned about it.

Mr. ANDERSON: I have a great regard for the rod and gun clubs.

Mr. HERRIDGE: One of your personnel was in attendance at the hearings in Kaslo, namely Mr. Weldon.

Mr. ANDERSON: Yes, he is with Cominco.

Mr. HERRIDGE: And, with respect to pollution control, they suggested arrangements should be made for municipal sewage treatment at Revelstoke and Nakusp; industrial waste, namely sawdust from forestry and concentrator tailings from mining; industrial waste at Duncan lake; municipal sewage treatment and industrial waste at Mica creek; and then in respect of Libby, municipal sewage treatment for Creston, Nelson and Bonners ferry, together with arrangements for industrial waste, and then municipal sewage treatment at Robson, Castlegar, Kinnaird and Trail.

Would your company support these proposals?

Mr. ANDERSON: There is a pollution control board set up in British Columbia which is holding meetings and looking into this whole question. I think that is a matter which is under advisement.

Mr. HERRIDGE: But, you would say it is a very important aspect of this whole problem?

Mr. ANDERSON: Pollution is an important aspect, yes.

Mr. HERRIDGE: Well now, I have some general questions. At the conclusion of your brief you say:

The treaty and the protocol which have been presented to parliament represent the result of years of study and negotiation, and in our opinion constitute a settlement which would be advantageous and fair to both Canada and the United States.

And, you respectfully submitted that the treaty should be ratified. Is that the opinion of the Consolidated Mining and Smelting Company of Canada Limited and the west Kootenay Power and Light Company?

Mr. ANDERSON: It is.

Mr. HERRIDGE: I have some questions now which I would like to direct to Mr. Wadeson. Perhaps, first of all I should put one further question to Mr. Anderson and, if he is unable to give an answer Mr. Wadeson would.

From what source in the Canadian section of the International Joint Commission did you learn that there would be no difficulty in respect of the issuance of an International Joint Commission order of approval on Waneta?

Mr. ANDERSON: I said this morning it was in a conversation following the hearings. Usually we have conversations after these hearings. No point of difficulty was raised at the hearings at that time. It was the general opinion at the meeting that there was no difficulty, but I cannot give any names.

Mr. HERRIDGE: When did this occur? Was it before or after you started construction?

Mr. ANDERSON: Before we started construction, after the first hearing. The first hearing was in July and construction was started later that year. Construction continued between the time of the hearing and before we got the order a year later.

Mr. HERRIDGE: Then, what amount of firm power would you expect to get from Libby in the absence of an interconnection agreement?

Mr. WADESON: We do not contemplate any special interconnection agreement for Libby. You may be aware, Mr. Herridge, that the co-ordination agreement that is currently being used in the northwest power pool involves

substantial payments and deliveries of power which will not be returned. Our licence for equichange with the national energy board does not permit us these privileges and we do not contemplate any special interconnection agreement. The amounts of firm power mentioned in the brief are anticipated without the agreement.

Mr. HERRIDGE: Then, Mr. Wadeson, is your present interconnection a straight energy exchange or are values of the energy exchange taken into account.

Mr. WADESON: There are no written values associated with that energy; it is strictly an equal exchange of energy on a per kilowatt basis.

Mr. HERRIDGE: In negotiating an interconnection agreement is your bargaining position better if you control the upstream storage?

Mr. WADESON: I cannot generalize on a question of that type. This would depend entirely on the season of the year during which these streams came to their maximum flows, the size of the reservoirs and the size of the system. There are many considerations in this regard and it is impossible to generalize. If you ask me a specific thing I will be glad to give you an opinion.

Mr. HERRIDGE: I was just asking my question in general terms.

Mr. WADESON: I cannot give you an answer.

Mr. HERRIDGE: Mr. Wadeson, you mentioned an interco-ordination agreement to protect your firm power. Is this standard practice in utility business?

Mr. WADESON: Yes.

Mr. HERRIDGE: Having regard to the co-ordination agreement that you expect to firm up, would you say that additional storage at Kootenay lake would be reduced under any such an agreement?

Mr. WADESON: I mentioned before that we did not anticipate a co-ordination agreement as far as additional storage at Kootenay lake is concerned. After the Libby project is brought into being we cannot get any additional firm power from that source unless the dates are changed in the International Joint Commission order. You may be aware that at present we are required to permit the lake to come down naturally to the four foot level by September 1, or we may hold it there until September 1. After September 1 we may raise that lake to six feet. When the Libby project comes into being because of the critical period—that is the possible adverse water period starts before September 1—any water we store will not produce firm power, but will simply shift the energy to one place from another.

Mr. HERRIDGE: Would you say an interconnection agreement with the United States is in a sense a substitute for a storage requirement?

Mr. WADESON: An interconnection agreement is associated with storage, but I fail to see how you can interchange energy by an agreement without in effect interchanging storage. If, for example, I agree with you to deliver so many kilowatt hours, that simply means you can back those kilowatt hours off your generators and put all the water into storage. It is what we call a consigned storage agreement. The two things are closely associated.

Mr. HERRIDGE: I ask my next question because I am not always happy about Canadians running to the United States, and feel that the opposite or vice versa situation would be better on occasions. Why did you go to the Bonneville system for an interconnecting agreement? Why did that authority not come to you?

Mr. WADESON: The Bonneville system was not in a position of having large blocks of unfirm energy which it required for its loads and, as Mr. Anderson told you this morning, we were able to firm up the first two units at the Waneta plant by regulating our Kootenay river system through the Kootenay lake storage. After we had the third unit installed we did not have sufficient

regulating capacity at the Kootenay lake and on the Kootenay river system to firm up. We did not go running to the Bonneville authority. We approached them in a business-like manner with a business-like proposal and very quickly came to terms. The two firms involved are operating firms.

Mr. HERRIDGE: It appears that the Kootenay lake and Pend d'Oreille situation is somewhat unusual because it involves two private corporations in Canada and a public and private corporation in the United States coming to an agreement in respect of downstream benefits from the Kootenay lake. Is it not usual for governments to make agreements of this type?

Mr. WADESON: I do not think that is necessarily true. Private corporations in Canada arrange for the sale of products, for example, across the line. I see nothing very special about water.

Mr. HERRIDGE: Do you know of any other case where there has been the sale of downstream benefits by a private corporation in Canada to any authority in the United States?

Mr. WADESON: We have not sold downstream benefits.

Mr. HERRIDGE: You were able to bargain with United States authorities because of downstream benefits that occurred as a result of Kootenay lake storage.

Mr. ANDERSON: We are simply exchanging kilowatt hours.

Mr. HERRIDGE: Yes, but the company itself is actually reaping the advantage of downstream benefits in kilowatt hours.

Mr. WADESON: We are adjusting our generation. We get too much at one time and too little at another and we balance this.

Mr. FLEMING (*Okanagan-Revelstoke*): Mr. Chairman, I should like to ask a supplementary question. On page 7 of your brief you indicate that the negotiation in this regard was presented to the authorities of the national energy board; is that right?

Mr. WADESON: That is correct.

Mr. FLEMING (*Okanagan-Revelstoke*): Therefore this was referred to an agency of government for approval before final agreement?

Mr. WADESON: Yes, that is true.

Mr. ANDERSON: There were hearings held in this regard.

Mr. HERRIDGE: I recognize that fact but I thought this was rather an unusual situation. I am not criticizing at the present time.

Mr. ANDERSON: We were the entrepreneurs.

Mr. HERRIDGE: I realize you were the first people in the field.

Mr. ANDERSON: Someone has to be first.

Mr. DAVIS: Mr. Chairman, I should like to ask a supplementary question. Would you agree that this is an unusual arrangement or that it is usual particularly on the Pacific northwest?

Mr. WADESON: This is extremely common.

Mr. DAVIS: It is not an unusual arrangement?

Mr. WADESON: No.

Mr. ANDERSON: This will become more common.

Mr. HERRIDGE: I should like to ask one more question. According to notes I made of earlier discussions, you expect to derive something of the order of 200 megawatts firm power on the west Kootenay provided that each and every one of the following conditions are fulfilled. First, that you get a licence to

build the Canal plant. Second, that the actual operation of Libby is not too adverse and, third, you get an interconnection agreement with the United States?

Mr. WADESON: You are putting words into my mouth, Mr. Herridge. However I will answer your question in this way. I think I was careful to say that the potential power capabilities of the West Kootenay reach, which is merely a geographical designation of that reach of the river, would be increased by, I think we have said, 210 firm megawatts.

As far as the operation of the Libby project is concerned, I am sure I have covered that at least twice this morning. I said that the whole system will be so flexible at that time that it will not require any very special operation of Libby to give us this 210 firm megawatts.

In regard to the interconnection agreement, frankly I have not carried out sufficient studies of power flows in the future to know whether we will need a new interconnection agreement or not. It is easily conceivable that by that time we shall have enough transmission between us and possibly the British Columbia Hydro and Power Authority to accomplish this without any additional transmission. Frankly I have not carried out precise studies of power flows and am unable to give you that information.

Mr. HERRIDGE: I should like to ask Mr. Anderson one further question. I do not know whether he will care to answer this question or not.

Mr. Fulton is reported in the *Trail Daily Times* of January 25, 1964 as having said:

British Columbia must move quickly to establish a co-ordinating Columbia river authority,—

Do you support the proposal, which incidentally has been made by other individuals, that we should have a Columbia river authority in which all agencies are under one head?

Mr. ANDERSON: Do you mean differing from the British Columbia Hydro Authority?

Mr. HERRIDGE: One authority covering the whole basin.

Mr. ANDERSON: We are about the only one left.

Mr. HERRIDGE: Would you agree with this proposal?

Mr. ANDERSON: I would not agree to it as a private enterpriser.

Mr. FLEMING (*Okanagan-Revelstoke*): It is essential that there be an authority called in, in other words British Columbia Hydro or another entity, to assume the ultimate responsibility for all the economic and social requirements such as the problems confronted by communities in preparation of the dislocation that must be created, the relocation of people, the preparation of land, diking and so on, and all the necessary things to make sure that there is no economic or human loss. It is essential that some authority accept the total responsibility, or else that a group or agency receive the leadership of an authority in this matter.

Mr. ANDERSON: That has been set up in the treaty, sir. The British Columbia Hydro has been named as the entity.

Mr. FLEMING (*Okanagan-Revelstoke*): But then you would agree that the jurisdiction of such an entity should extend to finding a solution for all the dislocations and changes that will take place in that river basin as a consequence of this development?

Mr. ANDERSON: I have no doubt that that entity will confer with all the people interested who are connected with it in some way.

Mr. FLEMING (*Okanagan-Revelstoke*): The only reason I am asking this question is that I should not like there to be any misunderstanding on the need to be rigid. What we are concerned with is providing for the vast requirements of change. Mr. Anderson, I have assumed you would be most concerned that no one should suffer loss when it can be avoided by the co-ordination of all these programs.

Mr. WILLOUGHBY: Mr. Chairman, on a point of order in connection with the same question, I do not think that in what Mr. Fleming has outlined there has been a suggestion of taking over the west Kootenay power.

Mr. ANDERSON: I think this question was somewhat different from Mr. Herridge's question.

Mr. WILLOUGHBY: Mr. Herridge's question was misleading, in my opinion.

Mr. HERRIDGE: I quoted from Mr. Fulton's remarks mentioned in the press.

Mr. DEACHMAN: I have a series of questions to ask the witness dealing with the question of the impact of the Columbia project upon the Kootenay area and the economy of British Columbia. I think that with his intimate knowledge of one industry in that area he would be very capable indeed of shedding some light on this. Mr. Anderson, I would like to call your attention to a sentence which appears at the foot of page one of your submission which says:

The production of steel and rolling mill products is being actively studied.

What I would like you to tell us is what is the trend in your company towards the diversification of products and towards their expansion in the field of secondary industry?

Mr. ANDERSON: The company has for some years diversified. Originally we were entirely a metal producing company. We have diversified with the production of S.O.2 and the sulphur gases into sulphuric acid for the production of fertilizer. In concentration of the Sullivan ore at Kimberley there is iron concentrate which has been stored for many years. At the present time there are 15 million tons of recoverable iron in the iron concentrate dump. That was about two or three years ago. Now, the company embarked on a program to utilize this mine of iron, you might say, and there were certain difficulties involved because this iron concentrate is involved with other impurities such as remaining lead, zinc, tin and various elements, and considerable experimentation had to be carried out to see whether a commercial product of pig iron could be produced from this iron concentrate. It started off initially by the installation of a 100 ton per day plant of pig iron. That has been in production for two or three years. This year a further 200 tons per day plant is being added. The plans under study are to further increase the pig iron production and then proceed into steel products. This takes large amounts of money, very long studies and market considerations in connection with our geographical location in Kimberley, but that is the long term planning, and I am in no position to say just when that planning might result in further expansion of iron and steel. That is an entirely new development.

Mr. DEACHMAN: Can I inquire as to how much additional employment that particular development would bring in the area?

Mr. ANDERSON: I am afraid I have no answer to that. It depends a great deal on the daily tonnages involved.

Mr. DEACHMAN: What about the development of a secondary industry in the area? I am thinking here particularly of allied industries and industries of suppliers to Cominco, perhaps in terms of packaging, handling of mill equip-

ment, and so on. What has been the effect of your industry in the area and what would be the growing effects of it in the future?

Mr. ANDERSON: The resources of the area are being used in lumbering. There is a 500 tons per day pulp and paper plant operating now in the area. The Canadian Pacific Railway is entering a logging business in the area in the Slokan valley. As yet, there are no secondary industries, as far as I recall, on the use of our metal products. I think one of the considerations that enters into this in a large way is the geographical location, the freight rates, and the distance to markets.

Mr. DEACHMAN: To what extent does power affect that development?

Mr. ANDERSON: It depends on the amount of power and the element of the cost of power on the industry concerned. In most industries, outside of the electrolytic plating industry, the amount of power consumed is a small part of the cost, in the order of from one to four per cent, so it depends on the element of power used in the industry.

Mr. DEACHMAN: Do you anticipate that the production of very cheap power at Mica would lead to the development of new industries in that area?

Mr. ANDERSON: I think it is a marketing problem, the distance from markets and the freight rates.

Mr. DEACHMAN: Turning now to the question of labour in the area, what has been the history of labour in that area over the past few years? Is it a stable area from winter to summer, or do you get a fairly wide fluctuation in unemployment?

Mr. ANDERSON: As far as Cominco is concerned, the employment has been very steady.

Mr. DEACHMAN: How about the towns of Trail, Nelson and Castlegar generally? Is employment there fairly steady the year round?

Mr. ANDERSON: There is some seasonal unemployment in the winter in some industries.

Mr. DEACHMAN: Do you expect the construction of the Columbia projects themselves, the Arrow and the Mica dams, will draw employees or draw the working force from that area to such an extent that it will pose any threat at all to your own operations? Will there in effect be a labour shortage generated in that particular area as these projects go on?

Mr. ANDERSON: Not that I am aware of. I think skilled workers might have to be brought in.

Mr. DEACHMAN: You believe skilled workers would probably have to be brought into the area?

Mr. ANDERSON: I think so.

Mr. DEACHMAN: Evidence was adduced here yesterday that the amount of power which Mica would produce would be far in excess of foreseeable loads. That is an amount of Mica power which is as much as you are now operating in your four or five dams. In your view, would the output of power from Mica be far in excess of foreseeable loads?

Mr. ANDERSON: As far as I am aware, there is no intention of machining Mica for a good many years. The dam will be constructed but there will be no power. I think the situation is somewhat changed now with the Peace dam on the way. I think the production of Mica will have to await loads.

Mr. DEACHMAN: We were given to understand that units at Mica would be put in almost with the completion of the dam, which would bring us power from there in about 1973. Am I correct?

Mr. ANDERSON: I was not aware that there was any machining contemplated at the time of the construction. If there were, I think there would have to be a market for it and the market might be export.

Mr. DEACHMAN: You mentioned this morning that it was the custom of your company and that it is the custom of power companies to make leaps forward in the building of their power. That is say, you build in blocks; you go ahead for a period—perhaps a long period—in which no building of power takes place, and then you suddenly build up again. Was this your statement?

Mr. ANDERSON: That is a reasonably correct interpretation of what I said. In the case of the Waneta dam, which was the largest dam Cominco constructed and was to take advantage of the head, initially two generators were put in which had a capability of 180,000 kw. Initially, Cominco could not take up that block of power; therefore, there was a period in which no expansion took place. It took a period of a few years to take up that amount of power.

Mr. DEACHMAN: How many years ahead would you plan to build?

Mr. ANDERSON: The large installations that are put in now take three years to construct, so we are at least looking ahead for three years. Our forecasts go up from five to seven years. We are fairly certain of our planning for five years ahead but we must allow three years lead time to build new generation.

Mr. DEACHMAN: In planning power resources for the province, as in the case of Mica, what do you think would be reasonable planning ahead?

Mr. ANDERSON: You are going a little beyond our normal thinking in projects of that size. I am sure the British Columbia Hydro and Power Authority must have contemplated studies of this kind, since they are directly involved. We have concerned ourselves with our own problems.

Mr. DEACHMAN: That is not my question.

Mr. PUGH: May I ask a supplementary question?

In your appendix 3 you have a projection of some 25 years. Do you think that is a reasonable way of doing things? This includes Peace river, the Columbia river development and the phasing of certain types of power.

Mr. ANDERSON: It must depend entirely upon the load growth figure they have used. I am not familiar with the figure they have used.

Mr. PUGH: You have not seen their report?

Mr. ANDERSON: I have not seen their report.

Mr. FLEMING (*Okanagan-Revelstoke*): The questions I wanted to ask were largely covered by Dr. Davis before the noon hour recess, but I would like to follow them up again because we have heard so much about the Kootenay water and the position Mr. Anderson's brief takes on page 9 on the general principle of the diversion. For that reason, I would like to go into it a little further.

First of all, is it correct that historically and currently your company is almost entirely dependent on waters that originate in Kootenay river?

Mr. ANDERSON: Kootenay and Pend d'Oreille.

Mr. FLEMING (*Okanagan-Revelstoke*): The Kootenay is the larger producer both presently and historically?

Mr. ANDERSON: No, the maximum capacity on the Kootenay will be 288,000 kilowatts.

Mr. FLEMING (*Okanagan-Revelstoke*): That is current installation?

Mr. ANDERSON: That is with no maintenance. That is with everything operating and our best water conditions. That is not in the high flood condition when we cannot produce so much. In best water conditions, with all machine operating, our maximum is 288,000 kilowatts. Our maximum capability on the Pend d'Oreille-Waneta plant is 284,000 kilowatts.

Mr. FLEMING (*Okanagan-Revelstoke*): It will account for 50 per cent of your present production?

Mr. WADESON: That is true as far as our peaking capability is concerned, but as far as the firm energy is concerned—which is our chief product, if I may put it in that way—the Kootenay system now produces 175 megawatts of firm energy and the Waneta plant, with three units, can produce 238 megawatts of firm energy. Therefore, Waneta is at present ahead of the Kootenay from that position.

Mr. FLEMING (*Okanagan-Revelstoke*): If there is a substantial diversion of Kootenay from a supply of water to your system, this would reduce your generating capacity very substantially. We have heard that at the end of approximately 80 years, within the terms of the treaty, there might be as high as 90 per cent diversion.

Mr. WADESON: Any diversion of the Kootenay that takes water away from us would mean that we would lose production.

Mr. FLEMING (*Okanagan-Revelstoke*): Therefore, you would be obliged to find alternative sources if this were to take place? Have you available or contemplated alternative methods of generating power that would be as economic to you as the power you can generate from the Kootenay waters?

Mr. ANDERSON: Perhaps Mr. Wadeson might elaborate.

Mr. WADESON: The loss of power from the diversion up in that part of the river is substantial, but it would not be a killing blow to our system. Our main objection to a large diversion up in that area is that it would inhibit our expansion. I have pointed out the benefits that are to be achieved from the use of Libby water. If the diversion is such that it inhibits the development of the Libby project, then at the same time it inhibits our expansion; and I think that is our principal objection.

Mr. FLEMING (*Okanagan-Revelstoke*): You are counting substantially on this additional 220,000 kilowatts?

Mr. WADESON: That is correct.

Mr. FLEMING (*Okanagan-Revelstoke*): You would derive that from the project?

Mr. WADESON: Yes.

Mr. FLEMING (*Okanagan-Revelstoke*): I think it is reasonably safe to say that should large scale diversion take place, provision would have to be made in advance for alternative sources of power at equivalent rates to your system in order to maintain the industrial complex.

Mr. ANDERSON: To retain our competitive position.

The CHAIRMAN: Is that it?

Mr. PUGH: That is the 190 odd source, the cost of that power?

Mr. ANDERSON: Yes.

Mr. PUGH: 1.9 mills somewhere around there?

Mr. ANDERSON: I do not know which source you are speaking of. I am sorry.

Mr. PUGH: Oh, that is increased to \$210,000 which you explained was to put in the dam.

Mr. ANDERSON: I do not think we have any figures of our own on that.

Mr. PUGH: Montreal Engineering has the figures.

Mr. ANDERSON: I am sorry, but I have not seen that report.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I would like to ask Mr. Anderson to turn to page seven of his brief where a discussion

of the Waneta plant takes place. I would like to get this clear. I notice that the Waneta and Duncan lake plants have been included in a number of briefs. Somehow it conveys the impression that in some way they are connected with the benefits to be derived from the treaty project. Would it be right to say that the Waneta plant, even though it is on the stream in the Columbia system, is in no way dependent on the treaty plan, but is separate?

Mr. ANDERSON: It is a project which is entirely separate.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It is not one of the benefits to be derived from the treaty? The treaty will not benefit it?

Mr. ANDERSON: I cannot see that there is any connection.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It was just the inclusion of it here that interested me, and I suggest that at page 12 you have also included the Duncan lake project.

Mr. ANDERSON: That is upstream of the Kootenay river.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Yes, and that also is a project which is not affected by the rest of the plan under the treaty?

Mr. ANDERSON: Well, Duncan would be a benefit to the Kootenay river plan.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Oh yes; but I mean it is not dependent on any particular development for the rest of the area?

Mr. ANDERSON: No, it is a separate storage reservoir in a separate area.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Yes, it is not to be considered as one of the benefits to be derived from the treaty plan.

Mr. ANDERSON: Well, it is in the benefits.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It is in the reference I know; but technically it is not dependent on the rest of the development.

Mr. ANDERSON: I am not quite sure that I understand. It is producing a benefit which is a flood benefit, and a downstream energy benefit under the treaty project.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It could have that under any circumstances, under any plan adopted.

Mr. ANDERSON: Cominco looked at Duncan lake storage at one time for its own operation, but the cost of that project alone for our own particular operation was not economic. However, to apply it to the treaty in the downstream benefits is a different matter.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Thank you. Now, on page 9 I would like to have a little explanation. I am sure there is an explanation which escapes me owing to my ignorance of these matters; but in paragraph (3) (a), in the last sentence, you refer to Cominco operation and diversion and you say:

As a general principle, Cominco opposes the diversion of the Kootenay river into the Columbia since it would alienate present or potential power resources from an area that is already highly developed industrially to a location that is presently remote from any major centre.

Would you please elaborate and explain where the alienation would take place?

Mr. WADESON: The treaty contemplates three possible diversions, but let us look at it in a general sense. Any diversion from the Kootenay alienates power from the plants on the west Kootenay route and transports that power in the form of generation to Mica, Downie creek, and Revelstoke canyon. That is all we mean by alienation. It is moving it away from the load centre which

is under development and moving it up into the upper regions of the Columbia river where there is no major load centre.

Mr. HERRIDGE: Could you get a similar effect from Murphy creek, if it were built?

Mr. WADESON: Not at the same price, and who is going to build it?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): What is the distance of the Mica site from the boundary?

Mr. WADESON: It is roughly 250 miles. You have, roughly, an equilateral triangle with the apex at Mica, one of the lower corners at Vancouver, and the other one at south Slokan, and that makes as much as 250 miles of distance.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Could you give me any idea of what the cost of that transmission would be per unit?

Mr. WADESON: I use a rule of thumb. You can assume that we could not possibly build transmission on voltage lower than 230,000 volts of transmission for 250 miles. I am not saying that that is the exact voltage. Conceivably it could be 345 kilovolts, but at any rate it would not be less than 230,000 volts. The minimum cost of that transmission would be in the order of \$60,000 per mile.

As we have told you, our load increases in relatively small blocks of possibly 20, 30 to 50 megawatts. The capability of that high voltage transmission, to build it economically, should be more in the order of 200 megawatts. So it would take perhaps several of these steps of use before that line was completely utilized. In other words, the unit cost of transmission for the power would be extremely high in the first few years. I am not prepared to say the actual number of mills per kilowatt hour. But it would be extremely high initially.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I have another question. On page 11 of your brief you refer to the High Arrow reservoir which will not regulate water passing through any of Cominco's present plants, and therefore will not have any effect on your power production system. And in the second sentence you say:

There is an indirect benefit, however, inasmuch as storage releases from Arrow could be used as a substitute for a part of a release from Libby, for example, to create more uniform flows in Kootenay river.

Could you explain that to us, please.

Mr. WADESON: Yes, sir. Let us assume an outside condition of something really exaggerated. Let us suppose that United States interests wanted to deliver 50,000 cubic feet per second in the Coulee reservoir and were not prepared to draw any water out of the storage on the Pend d'Oreille system.

One method would be to draw 50,000 cubic feet per second out of Libby, but that would mean that we would get rather more water than we would like to have coming down the Kootenay. So we would try to re-regulate it in Kootenay lake. However, I am quite sure that our Canadian entity would do its best in a case like that, and would take 25,000 out of Libby, which is something that the west Kootenay can handle, and take 25,000 out of the Arrow lakes. That is good for us, and good for them, too.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That is the main importance of the High Arrow to you?

Mr. WADESON: To us, yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): As an adjunct to the operation of Libby?

Mr. WADESON: That is right.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You said during some of your testimony that you anticipated no difficulty in obtaining co-operation in the operation of Libby.

Mr. WADESON: That is right.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You said there were physical and technical reasons why it should be quite easy to obtain it?

Mr. WADESON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Can you anticipate any circumstances in which United States interest in the operation of Libby could conflict with the interests of your company, if they had more demands of their own?

Mr. WADESON: No. The maximum hydraulic capacity of the Libby turbines is so close to the amount that we could use that if we assume the intervening inflow between Libby and Kootenay to be re-regulated by Kootenay lake, surely the Libby releases must be something we can handle, and if they are not, then, as I say, we can easily substitute releases from some other reservoir.

Mr. HERRIDGE: I have a supplementary question. Why would the United States insist on a provision in the treaty giving them the final decision in respect of Libby releases?

Mr. WADESON: For precisely the same reason that I want to have final decision on releasing water from Kootenay lake.

Mr. HERRIDGE: What is that reason?

Mr. WADESON: I want to be in control.

Mr. HERRIDGE: They are in control?

Mr. WADESON: That is right, at Libby.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): On page 10 you have a reference to the protection of floods of the magnitude of that which occurred in the year 1894. You say:

Protection from a flood of that magnitude could be achieved only by means of upstream storage such as would be provided by the Libby development.

Does this convey an implication that there might be some alternative to Libby which would serve the same purpose?

Mr. WADESON: Oh, yes. I think we all recognize that the complete diversior of the Kootenay, that is in effect a dam at the boundary, would have virtually the same flood control opportunities as would Libby; it must, because they are in practically the same spot, provided you can get enough pumps to pump out of the Dorr reservoir. It must have approximately the same flood control.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): On page 16 I come across the same words to which Mr. Herridge referred; that is, in the opinion of Cominco, the treaty and protocol constitutes a settlement which would be advantageous and fair to both Canada and the United States. Now, in making that statement, did your company take into consideration some of the doubt which has been expressed before this committee with regard to the degree of control that Canada really can exercise on the storages? Did your company seek and obtain a legal opinion from, shall I say, the people with expertise in international law, because apparently there are some questions there which are not quite clearly defined.

Mr. ANDERSON: I might answer that question. So far as taking a legal opinion is concerned, no, we did not, other than I may have spoken to Mr. Frere. We have followed the treaty and we have read the presentations which have been made here, although we have not had them too long.

The thing that appeals to us as operators, and from the economic point of view, is that these treaty dams are being paid for. There is payment for a service, the water flowing downstream, which enables Canada to build these dams to our eventual advantage at Mica, Downie creek and Revelstoke. Without this payment, I doubt very much whether Canada could economically go ahead on its own. I am sure it would be a very long distance away. To us that seemed to be a reasonable approach and a good basis of settlement on that portion of it.

The presentations made as a result of these long negotiations seemed to be reasonable to us. I have been engaged in some of these long drawn out negotiations, and I know the difficulties. You must have compromise in order to get agreement; otherwise everything falls through. Also, I should say that personally I know many of the people—the engineers—involved in these negotiations. We have confidence in their competence, and we think they did a good job. We believe they presented a very good case, and we think it is a good arrangement.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That does not quite answer my question. I had in mind not the present people who are in charge of operations in the United States, but rather the legal implications of the control arrangement for the storages in Canada about which doubt has been expressed before this committee to the effect that Canada would not have much control over them, and that the United States will set the terms of handling of those storages. On that score I am wondering whether you have had any legal opinion?

Mr. ANDERSON: No legal opinion; but in our experience, from an operating point of view, we could see no difficulty in this. The entities do have to co-operate in a planning program in five year steps. In planning anything, if you are going to co-ordinate, necessarily you must agree in order to come up with a plan. I think the Canadians are just as good as the Americans in reaching agreement on such matters.

Some hon. MEMBERS: Hear, hear.

Mr. ANDERSON: I see no difficulty.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I do not think it is a question of whether they are competent enough. I think it boils down to the legal interpretation of the treaty, which seems to be the question which is in doubt.

Mr. ANDERSON: I am afraid we have not consulted any legal opinion outside of our own company in that regard. I do not know whether or not Mr. Frere would add anything to that. I believe we have confidence in the government, the Department of External Affairs and their legal representatives.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Thank you; that is all.

Mr. STEWART: I would like to ask Mr. Anderson whether this company feels concern in the absence of the kind of legal opinion to which Mr. Cameron referred?

Mr. ANDERSON: Would you mind repeating that question, please?

Mr. STEWART: Obviously you have a large financial interest in this treaty and protocol?

Mr. ANDERSON: Yes.

Mr. STEWART: Do you feel uneasy in the situation you are in; that is, the situation in which you do not have a legal opinion with regard to the implications of the treaty and protocol? Do you feel uneasy?

Mr. ANDERSON: Personally I do not feel uneasy.

Mr. STEWART: Thank you.

The CHAIRMAN: Does that conclude the questions?

Mr. LEBOE: I have just one question as a result of a question asked by Mr. Cameron, and having to do with the Pend d'Orielle river. I believe under the treaty of 1909 diversion was something on which the United States entity was very, very clear with regard to their right to divert. It is my opinion—and I am wondering whether you feel the same way—that under the treaty there now are limitations to the diversion of the Pend d'Orielle river?

Mr. ANDERSON: Yes. It can only be diverted for consumptive use.

Mr. GELBER: Would this improve your position and make it more secure; would it provide a firmer basis inasmuch as diversion is more clearly defined?

Mr. ANDERSON: Yes. We are much happier that the treaty precludes any diversion of streams crossing the boundary.

Mr. GELBER: The treaty and protocol, therefore, really give a firmer basis to the position of your company.

Mr. BREWIN: I have a supplementary question on this matter.

The CHAIRMAN: Mr. Gelber, has your question been answered to your satisfaction?

Mr. GELBER: Yes; but I have another question after Mr. Brewin's supplementary.

Mr. BREWIN: I understood, from the answer of Mr. Batholomew yesterday, that the physical and other developments on the Pend d'Orielle made any diversion of that impracticable, quite apart from the legal right to do so.

Mr. ANDERSON: I think it would be very expensive; but latterly the Seattle City Light Company is now constructing a plant very close to the border on the Pend Oreille river on the United States side. I think even without the treaty it would be very difficult to divert, but I am much happier that it is in the treaty.

Mr. BREWIN: The treaty really just reinforces what you think is the practical situation in any event?

Mr. ANDERSON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I have a supplementary question.

The CHAIRMAN: I think there is another supplementary by Mr. Gelber.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): My question is on this point regarding the Senate project on the Pend Oreille. What is the distance of that proposed site of development from the city of Seattle?

Mr. BYRNE: It is 450 or 500 miles.

Mr. ANDERSON: I suppose, in the realm of 600 or 700 miles. This is not a matter of transmitting power directly from the plant to Seattle. This is a matter of displacement through the Bonneville system. It could be used in the Spokane area or moved on to some other site.

The CHAIRMAN: Mr. Gelber?

Mr. GELBER: Your company and British Columbia Power are the two chief utilities in British Columbia today; is that correct?

Mr. ANDERSON: Well, the West Kootenay is a relatively small utility compared to British Columbia Hydro. Cominco have their own plants for industrial power, and West Kootenay operates the plants for Cominco. The over-all installed capacity of the West Kootenay system is very large.

Mr. GELBER: The British Columbia power people gave us a certain view in respect of power in the Columbia basin, and their view of the treaty and protocol is based upon their projection of the position of power in the Columbia basin. I would like to know what your reaction is. I feel the criticism of the

treaty comes from people who do not agree with that view. As you know, the view of British Columbia power is that the asset we have in some measure is a wasting asset and we should make a deal now, and the critics feel we are giving away something which we can maintain and use for years to come. What is your view in this connection?

Mr. ANDERSON: I would agree with the view that the sooner you can develop hydro, provided that you have a market for it, it should be done, as costs are rising all the time and it eventually gets to a point where it will be more economical to develop power some other way.

Mr. BYRNE: Mr. Anderson, I wonder if you would care to comment on the importance of integration in your system rather than equichange. If your licence read "integration" would this provide for larger blocks of power being developed at one time rather than waiting for your requirements?

Mr. BREWIN: If the witness understands the question, that is fine; but I would ask that the hon. member explain his question for the benefit of the members of the committee.

Mr. BYRNE: What I meant by integration is where you would be able to have a net export at the end of the year?

Mr. ANDERSON: Do you mean to disregard the boundary so that we could integrate and interchange, and export and import at will with another large system?

Mr. BYRNE: Yes.

Mr. WADESON: At present, Mr. Byrne, that would not improve our firm energy position, with broader privileges in the matter of integration. Later on, as the critical period extends ultimately to the 42 month period, then it certainly will be restrictive as far as our operations are concerned if we have to balance off our energy interchange at 12 month intervals. This is looking a long way into the future; however, I assume by that time some other arrangements will be made.

Mr. BYRNE: Dr. Keenleyside indicated when he was before the committee that eventually, once we have established our right to the downstream benefits and we have gone through our construction period in all probability there would be an interconnection in the northwest Pacific.

Mr. WADESON: Yes, I support that.

Mr. BYRNE: Mr. Anderson, you mentioned expanding industries of high power usage in Kimberley and in the west Kootenay; could you explain just what is taking place at the moment in respect of some of your by-products and the reduction of the iron concentrate which, I understand, now is moving into the Saskatchewan area for the production of fertilizer.

Mr. ANDERSON: Well, in the production of fertilizer, one of the chief ingredients is sulphuric acid. The iron concentrate is an iron sulphide and the sulphur must be roasted out to produce an iron oxide before it can be treated in an electric furnace for pig iron. The sulphur from the iron sulphide is used to make sulphuric acid, and sulphuric acid is used in the treatment of phosphate rock in order to make phosphoric acid, which will be produced at Kimberley and shipped to Regina when the new fertilizer plant is completed there.

Mr. BYRNE: And, this depends on relatively cheap power in Kimberley?

Mr. ANDERSON: Yes.

Mr. BYRNE: Are you familiar with the railway which goes from approximately Wardner to Golden in British Columbia?

Mr. ANDERSON: Although I know the location I have not been a passenger on that train.

Mr. BYRNE: You realize under the so-called McNaughton plan this railway will have to be relocated.

Mr. ANDERSON: I think it will have to be very extensively relocated.

Mr. BYRNE: Have you any estimate of the amount of Cominco production which is offshore or sells in the United States which is carried by this railway at the present time?

Mr. ANDERSON: Well, I believe all the tonnage at Trail and Kimberley now is going east through the Windermere valley and to the coast, and up to the transcontinental at Golden and then east and west from there.

Mr. BYRNE: Going both east and west?

Mr. ANDERSON: So far as I know, but I am not familiar with their shipments. However, I do know that the products going out of Trail certainly to Vancouver are going that way and, outside of certain shipments to the Canadian east, movement would be that way. Now, I am not sure in respect of American shipments.

Mr. BYRNE: This is quite a considerable saving, I understand, at least to the railways. I do not know whether or not it is to the shipper.

Mr. ANDERSON: I do not know.

Mr. BYRNE: You pay the same amount; this would be more a matter of savings to the railway, I presume?

Mr. ANDERSON: It is of definite importance to the railway.

The CHAIRMAN: Are there any other questions. If not, I would like to congratulate the members of the committee and the witnesses for the prompt considerations given to these problems. We are half an hour ahead of time this afternoon and, therefore, I would ask for a motion for adjournment until 9 a.m. tomorrow morning when we are scheduled to hear Mr. Larratt Higgins of Toronto.

Mr. ANDERSON: Mr. Chairman, just before you adjourn the meeting I would like to express our appreciation on behalf of Consolidated Mining and Smelting Company of Canada Limited for your very kind attention.

Mr. HERRIDGE: Mr. Chairman, there were four or five members of the committee who had further questions to ask Mr. Bartholomew. I understand there is a spare day coming up, at which time we could put these questions to him.

Mr. MACDONALD: We finished him last night.

The CHAIRMAN: I was certain we had completed with Mr. Bartholomew last night.

Mr. HERRIDGE: This is not so. There were three or four who wished to put questions to Mr. Bartholomew, and Dr. Kindt was one.

The CHAIRMAN: Now, Mr. Herridge, I think if you consult the records you will find Mr. Kindt was on the list. He arrived late and he left early. He was scheduled to follow Mr. Brewin. Following Mr. Kindt there were questions by Mr. Groos, Mr. Stewart, Dr. Willoughby and Mr. Ryan.

Mr. HERRIDGE: Was this last night?

The CHAIRMAN: Yes.

Mr. HERRIDGE: Then there was a misunderstanding. There were three or four who wished to put more questions.

The CHAIRMAN: But surely there has to be some limit to the time we allocate to witnesses.

Mr. HERRIDGE: But, Mr. Chairman, we do have a spare day and surely we could call him back for the one session.

Mr. BYRNE: You may have a spare day but I have not any spare time.

Mr. HERRIDGE: I am sorry but I had to run over to the house because a question arose at 10 o'clock.

The CHAIRMAN: Mr. Herridge, Mr. Cameron and Mr. Brewin urgently have brought to the attention of the Chair the fact we are working this committee too hard.

It appears there is still a very heavy schedule before us. I had no knowledge last night that there were additional members who wished to ask questions of Mr. Bartholomew. I have my list from last night before me and every person on that list including Mr. Kindt was given an opportunity to ask questions.

Mr. HERRIDGE: Mr. Chairman, I had to leave because of the question which was raised at 10 o'clock. I did ask Mr. Bartholomew several questions, but I have several more I wish to ask. Am I going to be denied the opportunity of doing so?

The CHAIRMAN: Yesterday you were given the opportunity of questioning Mr. Bartholomew after Mr. Macdonald who followed Mr. Turner. I had the names of four members on my list being Mr. Turner, Mr. Macdonald, Mr. Herridge and Mr. Pugh. As I recall, you asked Mr. Bartholomew several questions.

Mr. HERRIDGE: As a result of further questions asked I should like to ask several more.

Mr. BYRNE: Mr. Chairman, I respectfully suggest that you, Mr. Herridge and the other members of the steering committee take up this question and find out whether Mr. Bartholomew can be fitted in again.

Mr. BREWIN: Mr. Chairman, the fact that one member of the committee asked questions and then desisted does not indicate that member may not possibly have further relevant questions to ask.

The CHAIRMAN: Gentlemen we have 20 minutes left before our regular hour of adjournment at 6 o'clock. I note that Mr. Bartholomew is here in this room. Would it be the pleasure of the members of this committee to continue now until 6 o'clock and then meet at 8 o'clock tonight to complete these questions?

Some hon. MEMBERS: Agreed.

The CHAIRMAN: Mr. Herridge indicated that he had several questions to ask.

Mr. HERRIDGE: Mr. Chairman, unfortunately I left my file in this regard in my office. I expect we will continue until six. May I be allowed to go to my office to get that file?

The CHAIRMAN: Yes.

Mr. FLEMING (*Okanagan-Revelstoke*): Mr. Chairman, if the committee is in session I should like to ask Mr. Bartholomew one question.

Mr. Bartholomew at page 45 of your brief, at about the centre of the page you state:

The lake will flood right back to Revelstoke, much of which will be endangered by the constantly rising and falling water level.

I wonder whether you made this statement prior to or after Dr. Keenleyside's testimony to the effect that diking and river bank protection work would take place at Revelstoke to avoid this danger. Dr. Keenleyside made reference to a meeting of the city council of Revelstoke in regard to this subject.

Mr. F. J. BARTHOLOMEW (*Electrical Engineer, Vancouver, British Columbia*): I visited Revelstoke and travelled around the river area there. I cannot remember the names of the engineers who were with me there at the time. This was in 1961. The conclusion that I came to was that there would be considerable damage to the stability of the ground which would be constantly affected by the flooding. I have not seen the evidence to which you have referred.

Mr. FLEMING (*Okanagan-Revelstoke*): In Dr. Keenleyside's brief, reference was made to the appointment of a regional planner. Further questions were asked regarding this situation. I am afraid I do not have the proceedings of the evidence of that meeting. In any event in his brief he also mentioned the question of relocation of roads, and that outside experts have prepared studies of the economy of the Revelstoke area and of the practicability, including the acceptability, of establishing a model village community for the benefit of people who had previously been living in isolated areas or in centres which will be inundated. Dr. Keenleyside also elaborated to some extent on this situation in his testimony. He specifically mentioned one meeting at Revelstoke at which this question of river bank and erosion control had been taken into account and that the British Columbia Hydro and Power Authority was continuing to work on this problem. I wonder whether, when you prepared this statement, you were aware of this other development referred to by Dr. Keenleyside?

Mr. BARTHOLOMEW: No I was not aware of that fact. I believe the logging industry will still be lost in Revelstoke. It is not large but it is worth while to Revelstoke and those areas below.

You can only make partial reparation. I discussed this matter with Mr. Hardman and he was of the opinion that it would affect at least 20 per cent of the Revelstoke economy.

Mr. FLEMING (*Okanagan-Revelstoke*): You are not suggesting, are you, that the timber harvested lies in the reservoir area; you mean only the plants?

Mr. BARTHOLOMEW: Considerable logging takes place in the reservoir area. There is an airfield in the area that will be flooded. I presume that if you go further you would find another airstrip there.

Mr. FLEMING (*Okanagan-Revelstoke*): To come back to the logging industry, the sawmills, not the timber, are affected. The timber harvested is not in the reservoir but in many cases the sawmills are there. Therefore, as Mr. Williston indicated, the British Columbia government is prepared to make crown lands available for alternative locations for both the communities and industrial development purposes so that this would meet the requirements of those mills. Provided that this was done, would the position of those mills be secured?

Mr. BARTHOLOMEW: I cannot answer that question. I think you have to find out from the sawmill owner himself what his resettlement situation looks like. Undoubtedly, if you compensate him at a high enough value he can say that he is all right, but you will be losing an active settlement area and you would be restricting it. They think, and I think so too, that that valley is worth saving.

Mr. FLEMING (*Okanagan-Revelstoke*): I do not want to argue the merits of that particular point of view, but suppose the land around Gordon river and the area northwest of Revelstoke are developed, as is contemplated, there is a substantial amount of land, as indicated in 1961 by Mr. Fulton, that will be flooded. The diking and protective works could provide something in the neighbourhood of 550 acres in the immediate Revelstoke area for industrial, commercial and residential purposes. Apparently he has gone further and indicated other areas that could be provided as alternative lands for redevelopment of communities. If proper compensation was paid covering the cost of the relocation of sawmills and so on, would you not feel that this would retain industry for that community?

Mr. BARTHOLOMEW: It is a difficult question to answer. I am guided a good deal by some of my timber and lumber friends in the area. They know it far better than I do and they put in a brief to the provincial government in December of 1960 before the treaty came out. Mr. Johnson of Revelstoke gave a most interesting and I am sure an important appraisal of the situation in

Revelstoke that would follow from the raising of the water to that elevation. I have been in Revelstoke many times. I do not know it intimately in the manner in which Mr. Hardman and Mr. Johnson and others up there know it. Admittedly I have to accept the opinions or the guidance of specialists in the area who have lifelong experience there. There was general concern expressed by these people. I have been up there several times and I know there was concern. However, I have to admit that of my own personal knowledge I know the general area you refer to but I have not investigated the possibilities of resettlement and its results.

Mr. FLEMING (*Okanagan-Revelstoke*): And you have not had conversations with these gentlemen of the city council since the meeting to which Dr. Keenleyside referred?

Mr. BARTHOLOMEW: When did Mr. Keenleyside have that meeting?

Mr. HERRIDGE: I have the verbatim report of the meeting with the city council on February 20, 1964.

Mr. BARTHOLOMEW: I have not been in Revelstoke this year.

Mr. HERRIDGE: I have just one question on the question that was raised by Mr. Fleming. Do you know we have at Nakusp quite a small sawmill but with a substantial business and two sawmills at Arrowhead which are going to be flooded out? These people have no idea where they are going to go at the present time. They would like to find out. It is going to be a very difficult thing on the Arrow lakes.

Mr. BARTHOLOMEW: Some of the sawmills on the Arrow lakes will possibly lose the facilities they now have for floating their lumber because the variation in height is too large to enable them to use that water in the way they have been using it until now.

Mr. HERRIDGE: I know one company which is intending to rebuild because of the fluctuation in the height of the water.

Mr. BARTHOLOMEW: I am quite sure they cannot use it.

Mr. HERRIDGE: Mr. Bartholomew, will you substantiate your statement that the United States plants are unable to increase their firm output by $3\frac{1}{2}$ million kilowatts when Canadian storages are affected?

Mr. BARTHOLOMEW: Mr. Chairman, this is a calculation which was made from the tabulations of the water flow of the Columbia river. I do not have the calculations in front of me by which these figures were arrived at but I think I can reconstruct it for you.

That figure is the total which would be produced in the United States. Actually, there is 1.3 million of firm power, of downstream benefits to the United States; there is 1.3 recognized by the treaty to Canada. There is 580 of firm power which the United States receives which is not shared by Canada. From the additional storage provided by Canada—

Mr. MACDONALD: Would it not be preferable if the witnesses did their homework before they came to the committee?

Mr. BARTHOLOMEW: I have no papers with me.

The CHAIRMAN: It is remarkable how the witness is working away here with his slide rule.

Mr. MACDONALD: I move that the committee adjourn until eight o'clock.

The CHAIRMAN: The witness was called up here without his papers. These are complicated questions.

Mr. BARTHOLOMEW: We have increased the generated energy by virtue of the five million acre feet in Mica not credited in the treaty, by one million acre feet at High Arrow not regarded in the treaty, and there are five million

acre feet of storage at Libby, which is not recognized as a Canadian asset in the treaty. The sum of those storages builds up to 600,000 kilowatts; I think that is it. I have 1.3 of Canadian, 1.3 United States generated in the United States, and 0.58 firmed-up power. That works out to 3.8 billion kilowatts of additional firm power generated in the United States plants owing to our storage. I am quite sure those figures are essentially correct.

Mr. HERRIDGE: Mr. Chairman, I move we adjourn until eight o'clock.

Mr. STEWART: I think we should be prepared to work long days. I am in favour of the motion.

Motion agreed to, and the committee adjourned to 8 p.m. this day.

EVENING SITTING

TUESDAY, April 23, 1964.

The CHAIRMAN: Gentlemen, I see a quorum. The first witness will be Mr. Herridge followed by Mr. Kindt.

Mr. HERRIDGE: You mean the first questioner, not the first witness. Now, Mr. Bartholomew, before six o'clock I asked you this question: Will you substantiate your statement that the United States is able to increase its firm output by 3½ million kilowatts when Canadian storage is effected. Would you mind completing your answer to that?

Mr. BARTHOLOMEW: No. I was looking for an authority. I wish to refer to the second report made by the United States river power system, the United States department of the interior, Bonneville administration 1961. They tell us that with the construction, and with that availability of treaty storage at Libby, this will enable the Bonneville to add 2 million kilowatts of firm power to the Bonneville reserves, and to add that, after delivering Canadian downstream benefits which at this time were expected to come to Canada, and that it is available from the treaty storage plus Libby.

But when you increase the treaty storages by an additional 5 million feet at Mica, and one million existing and available at High Arrow, you create an additional 200,000 or 300,000 kilowatts, leading this up to the 3½ million which I calculated. And there is one further comment. In this Bonneville report they are discussing the tie line with California, and point out here that this will divert the hydro energy to peaking and thermal displacement. That is not directly concerned with your question, Mr. Chairman, but the authority for my statement is supported by the authority of the Bonneville report.

Mr. STEWART: Could we have the page number, please?

Mr. BARTHOLOMEW: It is in the first section of the 1961 report. They use roman numerals and it is on pages III and IV. By the way, this reference to Bonneville resources does not include private companies such as Grant county, and Rock Island is another. I merely state that to show that the statement is quite conservative.

Mr. HERRIDGE: Mr. Bartholomew, yesterday you were discussing certain statements made by the Hon. Paul Martin in his letter to the Vancouver board of trade, and you were cut off before you had completed your analysis of his letter. Would you finish it?

Mr. BARTHOLOMEW: Yes, I will. The statement was made that the United States system is continually increasing and becoming more flexible in its operation. This is a major reason for the decreasing nature of Canada's downstream benefits, and the decreasing need on the part of the United States operation of

Canadian storage; as the system becomes more flexible, it is less likely that the co-ordinated operations of Libby will reduce the potential benefits to the United States.

My comments on that, sir, are that we are here making assumptions which could have been completely clarified in the treaty or the protocol. I feel convinced it is merely because we did not have the writing of it that we find them missing. The Hon. Paul Martin does point out correctly that Kootenay lake can do some re-regulating more or less on a daily basis, but if the condition arose that they wanted to hold back Kootenay until late in the season, or Libby, or release it early, there is nothing we can do to avoid it.

I do not think we can safely make any assumption how a big system like this is going to operate, particularly after it is interconnected with California. You see, we have a reference here in the letter. Studies run for an average year of streamflow. But all our benefits are based upon the critical year of streamflow.

The year of regulation is based to support the critical year, in order to get the optimum flow of that period. Again, "normal operations of Libby will suit *most of the requirements*". So, I feel that we are in a bad position when we have to say "to suit most of the requirements". In effect this is what we say.

The Hon. Paul Martin states again that consumptive needs are permitted if water is used for power generation en route to those consumptive needs. But there is nothing in the protocol or the treaty which declares it. And I think it is a very dangerous assumption to make.

We are again back in the field of speculation and hope. You see, here is another statement which I find it difficult to agree with. "It is not the size of the system which determines the best use of the storage, but the dependence of the system on that storage."

Well, it was suggested here that the system becomes less dependant upon storage which worked the other way. The facts are that they will use every cubic foot of water that they can get for peaking and thermal displacement. And when you run into the situation where we are tied to California, I would estimate—although I cannot prove it—that it was tied on to a system of one to two million kilowatts of generation at Libby, and I can imagine this would have the effect of accelerating by several years the period when Mica and Arrow and Duncan are called upon to provide peaking and thermal displacement service. I cannot agree, and I do not think that engineers generally would agree with the statement that the system becomes less dependant upon storage.

There was another suggestion made here that I find difficult. The Hon. Paul Martin states that the Sir Alexander Gibb report was in error where they inform us, or the British Columbia energy board, that Mica would lose 150,000 kilowatts of peaking capacity, and 25,000 of average energy. The Gibb engineers went down and conferred with the United States army engineers in Portland, and it was on the basis of the information and assistance that they received there in interpreting the system and the treaty, or appraising the system and interpreting the treaty that they arrived at these results.

I think one would be very rash to condemn the report of Alexander Gibb and Merz and McLellan. I consider them, as do many others, to be among the most reliable and competent consulting engineers in the world.

You will find this statement at page 26 of the first volume of the Gibb report. I find it very difficult to accept the criticism made by the Hon. Paul Martin of the Gibb statement here:

—any penalty to Canada brought about by conflict in operation—that is operation of Mica.

—would not reduce Mica's at site potential but would be deducted from Canada's share of the downstream benefits.

Now then, if we can look at the terms of sale, we find that anything we do to deteriorate the downstream benefits becomes a penalty to us. The United States will buy them back and replace them at *our expense*. We may have the opportunity of replacing them ourselves; but any time that we reduce the downstream benefits from the amounts theoretically available we would be penalized in the manner set forth in paragraph 4, page 120 of the white paper and in paragraph 3—and you refer back again to section A, paragraphs (b) and (c). I do not think the significance of that was realized when this was written.

Mr. HERRIDGE: This is Mr. Martin speaking?

Mr. BARTHOLOMEW: I quoted from Mr. Martin's comments.

Any penalty to Canada brought about by conflicting operation would not reduce Mica's at site potential, but would be deducted from Canada's share of the downstream benefits.

We cannot deduct it. We have sold these benefits and the United States paid for them, and we are going to have to replace them at our cost. Then, Mr. Martin suggests:

Even if the penalties suggested were valid—the reduction in our downstream capacity—would be about 10 per cent and 3 per cent in our capacity and energy.

Well now, in the protocol press release he has suggested that we Canadians are going to put in 1,800,000 kilowatts of generating capacity; that is our capacity. Is he implying in that that we would lose 10 per cent of that capacity? Mind you, there is no justification in my opinion for putting in 1,800,000 kilowatts; but it is called for, and if you take 10 per cent of it as spare, it still leaves 1,600,000. If the penalty is 10 per cent of that, it is 160,000, and we are right back at the Gibb figure.

So, again I find it difficult to follow the philosophy behind this interpretation, and I say it is a great pity that we did not take advantage of the opportunity when I thought we had it of writing a protocol, that said exactly what we wanted it to say rather than having a document which we have to interpret in order to see whether it means this or means that. I think that is a very disappointing document. With that analysis, I close that question.

Mr. STEWART: The document to which you referred was the annex to a letter transmitted by Mr. Martin to the Vancouver board of trade?

Mr. BARTHOLOMEW: Yes. I read it to the meeting but we did not get very far with it.

Mr. STEWART: Could you tell me whether the subcommittee of the board of trade has had an opportunity to make an analysis of this annex?

Mr. BARTHOLOMEW: We had about three meetings in Vancouver. I had a committee over at my house. We spent a very long evening there. They, the engineering committee, are always to start with highly critical of what I am thinking; they really are not sympathetic, and technically they cannot properly be until I have proved my case. They went through the papers and documents galore, and it is the considered view of the small advisory committee—the whole committee did not come over, but Doctor Smith and another friend came over, and they reported back to the engineering committee.

Mr. STEWART: But there has been no formal reaction yet?

Mr. BARTHOLOMEW: Well, sir, beyond this—

Mr. STEWART: Beyond what you now say.

Mr. BARTHOLOMEW: Well, the engineering committee reported to the council. First of all, they reported to the executive committee of the council. The Board of Trade executive committee then took it up with Council.

Mr. STEWART: I do not think this is important enough to go on with. However, in my hand I have a copy of a letter from the Vancouver board of trade dated April 23. I do not propose to read it, but I would like to call to the attention of the committee the fact that it says:

The substance of your reply . . .

Mr. Martin's reply.

. . . is now being studied by our subcommittee.

The letter concludes by saying:

I congratulate you on your devotion to the job and I thought you would like to know the very excellent manner in which you have dealt with our submission has not gone unnoticed.

Mr. BARTHOLOMEW: The subcommittee has not seen this. This arrived at my office a day or two before I left Vancouver. It is on the agenda for our next meeting. The engineering committee have not considered this document at all. What I am giving you now is my own interpretation of it. In other words, the questions sent to Mr. Martin were authorized and sent by the council, but his reply has not been looked at by the engineering committee.

Mr. STEWART: This is a reaction to Mr. Martin's reply to the questions your committee posed to him.

Mr. BARTHOLOMEW: This letter you have there?

Mr. STEWART: Yes.

Mr. BARTHOLOMEW: That was Mr. Morris' reply, I presume.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): On a point of order, does one now assume that any member of the committee may inject a letter and have it recorded in the proceedings?

The CHAIRMAN: No. I think we should endeavour not to put letters in, in that manner.

Mr. STEWART: I am prepared to table this.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No, you cannot bring the Vancouver board of trade here to be cross-examined. That is my difficulty.

Mr. MACDONALD: I have a supplementary question of Mr. Bartholomew. Was Professor Muir, the head of civil engineering at the university of British Columbia, a member of the subcommittee?

Mr. BARTHOLOMEW: Yes.

Mr. MACDONALD: Did he agree with your conclusions which you presented to us yesterday and today, and which are exhibited in the document to which you refer?

Mr. BARTHOLOMEW: Professor Muir has concurred in the resolutions from the engineering committee to the council of the board of trade. He has nothing to do with what I have here interpreted in this letter from Mr. Martin, nor was the board of trade. This is purely my reaction to it. He probably has seen it, but it has not been studied, nor has it been discussed.

Mr. MACDONALD: You are saying that Professor Muir has not confirmed our opinions. Is it not the fact that Professor Muir, rather than being opposed to the treaty, protocol and terms of sale, is very much in favour of them?

Mr. BARTHOLOMEW: I do not think it is fair to ask what Professor Muir's thoughts are; but Professor Muir did sit with the engineering committee when his paper to Mr. Martin was drafted.

The committee of the board of trade sent a memorandum in which they advised Mr. Martin it did not represent council policy and Professor Muir was a member of the engineering committee, and sat in on that together with Mr. Stacey, Dr. Smith, Col. Letson and others whom I do not recollect at the present time.

Mr. MACDONALD: Mr. Bartholomew, I put it to you specifically that Professor Muir does not share your views. In this connection I would refer specifically to the proceedings of this committee at page 445, in which is set out a letter from Professor Muir, which later was introduced into the proceedings. The part of the letter reads as follows:

My position on the proper sequence of power development now differs slightly from the conclusions given in my letter to the editor of the Engineering and Contract record. I would now revise clause 2 as follows:

Proceed as soon as possible with the Columbia river development, including the Mica power plant, on the basis of the treaty, protocol, and terms of sale agreed upon between Canada and the United States on January 22, 1964.

That is the position of Professor Muir, the head of the civil engineering department, university of British Columbia.

Mr. HERRIDGE: Mr. Chairman, we have another letter.

Mr. CADIEUX (*Terrebonne*): I have a supplementary question, Mr. Chairman.

Mr. Bartholomew, in connection with that meeting you had at your own home at which members of the special engineering committee of the Vancouver board of trade were present you said they were not sympathetic. I gather that they were not sympathetic to your views. Am I right or wrong in this connection?

Mr. BARTHOLOMEW: No. Whenever I bring anything up in needling a group of sceptics I have to convince them by the severest logic that I am right. I did not get an initial sympathetic hearing. Now, mind you, they are all very good friends of mine. They approach every new problem in a highly critical frame of mind and, any time they agree to anything, they make a pretty good study of it.

Mr. MACDONALD: You did not appear to convince the head of the civil engineering department at the university of British Columbia.

The CHAIRMAN: We will now revert to Mr. Herridge and Mr. Kindt will be next.

Mr. HERRIDGE: Mr. Bartholomew, what Mr. Macdonald is referring to is a statement made in the house in which I said I had received a letter informing me that Professor Muir was critical of the treaty. In your discussions with him prior to the date in which he wrote this letter and changed his position would you say he was critical of some aspects of the treaty?

Mr. BARTHOLOMEW: I wonder if you would excuse me from answering that question. Professor Muir is a very old friend of mine and the last thing I want to do is embarrass him. And, I suggest, it does not advance the study of this subject. If you do not mind, I would rather be excused. I think you will have to look at the letter yourself and come to your own conclusion. But, I do want to say that anyone who makes any criticism of the treaty or the protocol, whether he realizes it or not, is opposing the treaty because you cannot modify that treaty without it passing the United States congress and, therefore, it becomes destroyed and has to be re-negotiated. I think a lot of people who have said a lot

of things about the treaty have thought that merely because they do not like the High Arrow dam or Libby, but were prepared to endorse everything else, they were supporting the treaty. But, any criticism you make on the treaty is condemning it.

Mr. MACDONALD: I have a supplementary, Mr. Chairman.

Perhaps it would be useful in respect of that statement to read the statement which preceded the one I just read from Professor Muir, which reads as follows:

Because we had insufficient engineering cost data available on the McNaughton proposals we meticulously avoided taking any stand on the relative merits of the McNaughton and treaty plans of development of the Columbia.

But, as he goes on to point out, now having those figures available he supports the treaty plan, the protocol and terms of sale.

Mr. BARTHOLOMEW: I do not want to comment on that.

Mr. HERRIDGE: We always have to let Mr. Macdonald have a go, you know.

There is a map at the end of the addendum to your brief which, to me, is most interesting. As a layman, I would like you to explain it briefly. Mr. Chairman, I think it should be included in the minutes of today's proceedings because it is indeed a very interesting map.

Mr. BARTHOLOMEW: We do not determine the capacity of a plant nor of downstream benefits by the annual flow and you will remember the treaty has used the term "critical flow". I have to admit for over a year I was under a misapprehension in respect of the interpretation of the words "critical flow". I received a letter from other departments pointing out that I had to consider the 1932 year, and I based a whole raft of calculations on the water flow for 1932. It made it sound very stupid. But, I was quite a long time in really comprehending what was meant by the critical period and it was not until I set up a whole series of years on a chart and began to study them that I began to see what was involved. The department was very tolerant in carrying on correspondence with me. If you like, you might say I was barking up the wrong tree.

However, this chart analyses the principles applied in determining downstream power benefits. On the left hand side of the chart it shows that in 1928 the dam sites were all overflowing or they would have been had they been filled because more water had run in than could be stored, and each year thereafter you determine the maximum average load you can maintain throughout the year and for the critical period.

I think one of the interesting things is to show what a little bit of water storage area will do initially towards firming up or creating substantial average power. You see, the flow of the Columbia river goes down to less than a million acre foot a month and only 11 million acre feet of storage increases the average flow up to $3\frac{1}{2}$ million AF per month. Now, a plant has to be able to provide the output for all the low water years. Here we have drawn a line to provide the length of the chart to determine the maximum amount of average water power throughout the whole period that we can support with our storage. If you know the maximum amount of water during the critical period that becomes the basis for your firm power. The bottom section is what is available from the United States current storage above Coulee. The next block is the treaty storage, and the following one is the unrecognized storage created by the dams which will produce the additional energy. You could say the height of these lines bear close relationship to the energy produced. But, it has to be on that four year basis. For the remainder of the 26 years the water never gets this low, creating

this condition. It gets very close to it in 1945 and 1946 but does not create as bad a condition as in 1928 to 1932. This is what is called the 42 month critical period in engineering terms. We obtained a lot of our calculations through the use of these figures.

Mr. KINDT: Mr. Bartholomew could you give us a thumb nail sketch of what is meant by your paragraph 4 on the first page where you state:

It will be shown that the original treaty did not take cognizance of nearly the full benefits created downstream in the United States by the Canadian stored water.

I gather that means you feel Canada is not going to receive the full benefit through the treaty in respect of Canadian stored water; is that right?

Mr. BARTHOLOMEW: Yes. I think you have interpreted my words accurately. We have assigned under the treaty 15,500,000 acre feet and we have six million more created. We have created five million acre feet at Mica and one million at Arrow lakes which we say we are keeping to firm up our own water requirements. We have permitted the construction of the Libby reservoir with five million acre feet in Canada, covering 42 miles. We have no credit for that storage. I maintain that the 200 kilowatt years, despite expectations, should not form a valid consideration unless the authorities agree to give us equal benefits for every month in every year in respect of the additional water that we store, because when that water reaches the United States it will increase the power generation there beyond treaty levels.

Again I make reference to the statements of Sir Alexander Gibb and Merz and McLellan who have made some comment in this regard. They did not attempt to calculate this figure of unrecognized power increment. We have tried to make this calculation. Sir Alexander Gibb and Merz and McLellan did analyse the deterioration at Mica.

Mr. KINDT: In arriving at the conclusion you have voiced in your statement you must have had in the back of your mind an understanding of the fact that this water will pass through ten or 12 dams on the Columbia, which now have additional generators ready to be put into operation, generating a certain amount of electricity; is that right?

Mr. BARTHOLOMEW: Yes.

Mr. KINDT: Do you feel that under the treaty we will not receive full benefit? Is it your understanding that the computation in respect of the increment as related to the storage was not followed properly in preparation of the treaty?

Mr. BARTHOLOMEW: This additional storage was not included in the calculations of the power increment which would arise as a result of the treaty water. These calculations were based purely on the 7.1 million acre feet at Mica, the 7 million acre feet at Arrow and the 1.4 million acre feet at Duncan. The fact that there is this additional storage was not taken into consideration when the power calculations were made. That water will go down through these generators and will create additional kilowatt hours at I think approximately the level I have indicated.

There is one degree of uncertainty on the matter of co-ordination in respect of which I do not wish to enter discussion. I am sure my figures are not far wrong.

Mr. KINDT: The water passing through the additional dams on the way down the Columbia would certainly create the generation of additional electricity. Of course that is the purpose of the additional storage capacity in the Arrow lakes. You suggest that Canada will not receive the full power benefits from the additional storage of water in Canada. That statement refers to power benefits but will you comment in respect of irrigation benefits?

Mr. BARTHOLOMEW: Canada is free to draw literally as much as is required for the purposes of irrigation. The United States army engineer report in respect of irrigation points out that that draw down is very slight. Canada may draw down as much water for the purposes of irrigation as is required yet the effect will not be severe.

Mr. KINDT: Perhaps we should consider these benefits in terms of the United States because we have referred to the power benefits received in the United States because we have referred to the power benefits received in the United States in respect of the amount of land which will be put under cultivation as a result of irrigation following this additional storage in Canada?

Mr. BARTHOLOMEW: I have seen figures in this regard which very much astounded me. I have not studied them. I did not investigate them. I believe those figures to be correct. I am afraid I did not even record them and I cannot remember them. The figures I saw regarding the value of additional lands to be developed as a result of irrigation were overwhelming. I cannot give you the exact figures.

Mr. KINDT: Did the benefits that those figures referred to have relation to new agricultural lands used for fruit and intensive crops along the Columbia river south of the Canadian border? Were those benefits computed and was Canada given credit in that regard in arriving at the treaty conditions?

Mr. BARTHOLOMEW: No benefits were considered other than power and food benefits. I believe three other benefits exist as a result of this additional water storage. The benefits from irrigation are important and these benefits result from the use of very little water.

Navigation benefits are important. One whole section of this U.S. Army engineers report deals with navigation and points out that when the river is regulated deep sea or lake ships of a much greater size will be able to ply the river much further up.

The third use which will undoubtedly be important in the next ten to twenty years results from the development of distribution of water for the population. Water crises are threatening large areas in the United States. I am advised that engineers in California are considering pumping or transmitting water for industrial and domestic uses in California from the Columbia River.

Mr. KINDT: Since water is a limiting factor for production in the semi-arid regions, is it reasonable to assume that one of the most important long term benefits from the Columbia river development will be the availability of water for irrigation and other purposes, which can be measured in the use of millions of additional acres of land?

Mr. BARTHOLOMEW: I think many people hold that view. At the present time California is paying from 40 cents to 50 cents per thousand gallons for water that has been condensed to desalinate it. They are distributing it, I believe, in San Diego where there is a very large plant, and an atomic plant is going up there for the same purpose.

Mr. KINDT: Would it be possible that the people on the United States side who have taken a leading part in the development of the treaty had in mind at over a long period of time what looked to be the first consideration, that the use of this water for the production of food when the population grows and new lands are cultivated, might be away down the list and that these people would be responsible for stating that we must deliver this water forever?

Mr. BARTHOLOMEW: I am perfectly certain the United States has a thorough appreciation of the developing need for water and the fact that it will become scarcer with time. I think they are making every effort to assure their future supplies.

Mr. FLEMING (*Okanagan-Revelstoke*): Mr. Chairman, I have a supplementary question. I wish to have one point clarified. There was some suggestion that we were going to direct to the United States some additional water. Are they not getting it all now in the normal flows from the Kootenay and Columbia?

Mr. BARTHOLOMEW: Yes, but the trouble is that the great bulk of that water flows down in the summer time; the winter flow gets very low. They could not afford to divert from the lower Columbia river 10,000 cubic feet per second and send it into California from the low winter river flow. Once they can get the water averaged out and they can eliminate the water that is being wasted today, then the loss of 10,000 cubic feet per second would not be nearly as serious. At the present time they can get an average flow of 55,000 feet at Grand Coulee. The water which flows over Grand Coulee averages 99,000 cubic feet per second; nearly half of that water is wasted because there is no storage for it. The same condition prevails all the way down the Columbia. If they can save that water from flowing over the dam and flowing out into the ocean then they can afford to tap off 10,000 cubic feet per second and not be in too bad a position.

Mr. FLEMING (*Okanagan-Revelstoke*): I need two or three answers to get the matter completely clear. Irrigation water, which is what we have been talking about, is used during the summer months and, I assume, when the flows are at their peak. Does this mean that this regulating of the flow for power production purposes will have a bearing on the United States ability to draw water off into reservoirs for irrigation purposes? Why can they not build irrigation reservoirs during the summer months when they have the water, and will continue to have the water because we will not stop it?

Mr. BARTHOLOMEW: We are not talking about irrigation reservoirs but about the daily use of water for domestic, industrial and irrigation purposes.

Mr. FLEMING (*Okanagan-Revelstoke*): I was talking about irrigation waters.

Mr. BARTHOLOMEW: Most irrigation water is obtained from the diversion of streams in the summer time. I said earlier that irrigation waters do not rob rivers appreciably.

Mr. DAVIS: Did you not say that the United States would get irrigation benefits.

Mr. BARTHOLOMEW: Yes, there will be irrigation benefits, but I also said that the abstraction for irrigation is negligibly small. The figures are given in here.

The CHAIRMAN: I do not want to cut the witness away from Mr. Kindt but Mr. Macdonald and then Mr. Brewin have supplementary questions.

Mr. KINDT: I would like to continue.

Mr. MACDONALD: I am prepared to defer to Mr. Kindt as long as you bear in mind that I have a supplementary question.

Mr. BREWIN: As soon as Mr. Kindt is through on irrigation I would like to come back to it.

Mr. KINDT: I would like to continue with the witness. He and I are getting along very well and I would like to follow through on some of the thoughts that I am sure has at the back of his mind with respect to this particular clause on Canadian stored water. I want to probe into that so as to find what benefits we have not been getting. I touched on the question of irrigation. This is a question of irrigating at a time of the year when it would be least effective for our purposes of balancing the two out. Is that right?

Mr. BARTHOLOMEW: Yes, except that most irrigation water is lost by evaporation.

Mr. KINDT: Most of the irrigation water, or a good part of it, is spread out during the growing season.

Mr. BARTHOLOMEW: Generally speaking we would have lost it which is usually in the period of higher flow.

Mr. KINDT: The freshet period.

Mr. BARTHOLOMEW: Yes, during full storage when fully developed, in some years you waste no water at all so that irrigation would become a draw-down from water that might have been used for power or something else.

Mr. KINDT: Would you say then, Mr. Bartholomew, that one complements the other without particular loss of power, so that you get the irrigation benefits as well?

Mr. BARTHOLOMEW: You can up to a point where the river is not fully developed. When you have developed all your storage behind the dams, then what you use is a drawdown for irrigation, but that usually comes pretty late, and even so there are many years when you will get a high precipitation when more water is available.

Mr. KINDT: Each one of these multiple purpose dams have their draw-off for irrigation purposes.

Mr. BARTHOLOMEW: Many of them.

Mr. KINDT: There are ten of them all the way down. The water which has flown through there has already done its job of generating power. We are using it for another purpose, which is irrigation. What you are saying is that having used that water for power production in several power installations, you are then using it for irrigation so that we do not receive benefits in price which we receive for power. Is that your thought?

Mr. BARTHOLOMEW: It is. It is particularly so when it is used for industrial and domestic purposes.

Mr. KINDT: We have covered power benefits. You say we have not the proper measurement of the benefits on power and we have not proper benefits on irrigation. Would you say that irrigation has figured in that at all?

Mr. BARTHOLOMEW: No.

Mr. KINDT: Was that free in our computations?

Mr. BARTHOLOMEW: They are entitled to use it without any strings. Under the treaty they can use it for irrigation and for navigation.

Mr. KINDT: Now, we come to flood control. How much flood control do you expect would take place on the lower Dalles after this water has gone through the ten storage dams on the Columbia river before it reaches the Dalles?

Mr. BARTHOLOMEW: The Columbia river at the Dalles can vary from a peak—speaking from memory—of 300,000, and it can go up to 1,250,000 c.f.s. We are providing storage. We thought that we were providing it to store enough water to prevent floods at Dalles exceeding 800,000 cubic feet per second which the United States can take care of reasonably well with their present dikes.

However, in the protocol they have dedicated further storage to reduce the Dalles flood to 600,000 c.f.s. I can assure you that neither the United States nor the Canadians realized before that this was going to happen. When the treaty was made, in all the speeches reported in the proceedings of the United States Senate—in speeches by Itschner and Udall—storages in Canada were referred to as being aimed at reducing floods not to exceed 800,000 c.f.s.

Mr. KINDT: Mr. Bartholomew, is there some doubt from an engineering point of view about getting a measure of the flood control benefits from Canadian storage?

Mr. BARTHOLOMEW: Yes, we can do it quite easily. All we require is the daily flow of the various branches of the river. We in Canada cannot do it because we have not the United States records, but the United States has a very comprehensive recording system under which every single stream that flows into the Columbia is recorded. The record goes onto a card which goes into a calculating machine, and in five minutes they can give you an answer to the question: where should storage be used to obtain the safest degree of flood protection?

Mr. KINDT: What percentage of the watershed of the Columbia river is in Canada? It is supposed to be 13 or 14 per cent including the Okanagan.

Mr. BARTHOLOMEW: The Columbia river above Kootenay has an area of 14,500 square miles.

Mr. KINDT: What I am saying is that that is one figure; that is Canadian.

Mr. BARTHOLOMEW: All right; what is it you want?

Mr. KINDT: What I want is the percentage of the watershed in Canada and the per cent in the United States.

Mr. BARTHOLOMEW: Those figures are included in the United States army engineers' report.

Mr. KINDT: It was given in one of the reports as 14 per cent, and that figure includes the Okanagan, and as there are no structures on the Okanagan it would be fair to deduct that.

Mr. BARTHOLOMEW: Yes, the figures are here somewhere. I do not happen to have indexed that and I will have to look for it. I have the percentage of run-off from each of the branches.

Mr. KINDT: Can you give us the figure of the run-off?

Mr. BARTHOLOMEW: In the flood period of 1894 the Columbia river above the Kootenay provided 23 per cent of the total; the Kootenay provided 17 per cent. Now we come to the rivers figure for the Pend d'Oreille and Clark Fork, which is 15 per cent, for Spokane, Snake—

Mr. KINDT: How was the flow from Canada computed? Would they have their instruments at the line and would they measure their flows there into the Columbia and also measure the flows at the exit?

Mr. BARTHOLOMEW: Canada and the United States have recording instruments at every major stream on the Columbia, Kootenay, Pend d'Oreille and so forth, as well as in many other areas throughout Canada. We do maintain here a very excellent water department which keeps us constantly informed of water flow at all major points in the country.

Mr. KINDT: Then let us turn to the benefits from flood control—and this is what I am trying to get. You have made a statement to the effect that we have not the benefits to which we are entitled, and we are just following through each one. I am speaking of benefits under flood control. What do you say about the Dalles? If 23 per cent of the water comes from Canada that would lower the crest, shall we say, by six inches or a foot at the Dalles. You would still have a flood, but it would just lower the crest.

Mr. BARTHOLOMEW: That is what they are trying to do. They are trying to lower the crest.

Mr. KINDT: Yes, they are trying to lower the crest. You would not eliminate the flood completely.

Mr. BARTHOLOMEW: Not completely, no.

Mr. KINDT: You will always have floods.

Mr. BARTHOLOMEW: You will always have spasmodic floods. Some years there would be no floods and other years there would be floods because the flow of the river varies enormously.

Mr. KINDT: Then it becomes an academic problem to compute what flood damages should be attributed to waters in Canada when you are only lowering the crest from the upstairs window down a foot or two in the house. You still have a crest there and you still have a flood. Would you agree with that?

Mr. BARTHOLOMEW: Yes. The United States has calculated how many dollars an acre foot of flood storage is worth to prevent floods, and the figure they have told us their calculations in the Columbia basin is that one acre foot of flood storage per year is worth \$1.38 a year.

Mr. KINDT: In order to prevent floods there is a storage dam complex to catch freshet water. Why are those dams not built on the lower Snake. There is one just as it enters the Columbia, but what about when you go on up into Idaho where you have a thick population? Why are the dams not built there?

Mr. BARTHOLOMEW: There are two or three dam sites in the United States. There is one at Knoles, one at Bruce's Eddy and two or three on the Snake. They are building what we know as the Nez Perce High Mountain dam on the Snake river now, but the other dams are not being built. The other dams, Bruce's Eddy and Knoles, are expensive and they disturb a great deal of the population. It will cost them three or four times as much to build those as to get the same benefits from Canadian storage.

Mr. KINDT: You say it disturbs a lot of the population. If you approach them about having their ravine dammed up for water storage in order to protect the people at the Dalles, what would those people be likely to say?

Mr. BARTHOLOMEW: There is a great deal of opposition at Knoles; they have been trying to get it built for a long time. The local opposition has been so strong that the army engineers have been unable to get an appropriation from congress.

Mr. KINDT: You have put your finger on it. You say you cannot get local support. Is it true that those people on the lower Snake would say, "Well, if you want a dam put in here to protect people at the Dalles, let those people at the Dalles move up onto higher ground. Since, because of the very fact of nature, we are always going to have floods, the things for them to do is to get up on higher ground and then our homes will not be destroyed and we will not have to move out in order to protect those people on the flood plain. Those people should move out." Is that the type of conversation that goes on?

Mr. BARTHOLOMEW: More or less. There is a great deal of local opposition in many of these areas to these structures. There are one or two structures up on the Snake, one of which they are building now, to which I believe there is not a great deal of local opposition because the population is thin there. They are developing there essentially for the purpose of power; the flood storage is incidental.

Mr. KINDT: Well, in other words, you say that storage for flood control was incidental.

Mr. BARTHOLOMEW: Yes, that is the case in the United States, although Libby has a very large credit for flood storage in the United States army engineers analysis; but by and large dams are built for their power generating capacity rather than for their flood storage capacity.

Mr. KINDT: Yes. But under this treaty there is a provision which says that we have to deliver this water for ever, and if flood damage is above a certain amount, we must put in more structures to retain the water and hold

it back, I mean dams. How do you reconcile that part of the treaty with the imputed benefits for Canadian storage for the allegation of floods on the lower Columbia?

Mr. BARTHOLOMEW: Well, sir, I have never been happy even about the actual principles of the treaty. I look at the flood storage, and while we were to get \$1.38 per acre foot allegedly for what is known as first added flood storage, it does not cost the United States a bean. We have to build it, and may keep half the profits, and we also get one half the profits. There is nothing to complain about in that. But what I do complain about is that we do not get the flood storage credited that was recommended in September 1960 report, when the negotiators made their reports to the two governments. Instead, between that time and the treaty they downgraded the treaty, and the protocol has downgraded the treaty except for the cash payment.

Every time they get a go at us, they take another couple of candies out of our candy bag.

Mr. DAVIS: You said that primarily flood control did not cost the United States a bean. I thought it cost the United States \$69 million?

Mr. BARTHOLOMEW: Yes, but that represented less than half their savings.

Mr. DAVIS: Yes it was \$69 million.

Mr. BARTHOLOMEW: Yes, it was half their profits. They get the same payment, and we have to build the structures. If they paid for half the cost of the dams and got half the benefits, I would go along with it. I say we should both go it fifty-fifty.

Mr. DAVIS: Your statement that flood control does not cost the United States a bean is obviously incorrect.

Mr. BARTHOLOMEW: All right. I am sorry. They did not have to spend any money in their own country. They do pay us one half the profits that they get out of it, yes, but we have to build the structures, and we get only half the profits. They do not have to build any structures, but I do not make much complaint about that. However I do complain that there is degradation of the Canadian interests between the treaty recommendations and the treaty, and at a later time between the treaty and the protocol.

Mr. KINDT: I am just about finished with this particular section. There are still other benefits such as recreation? Is that true? You mentioned recreation, navigation, and other benefits which will come about as a result of storage facilities in Canada. Have all these been computed in, and is Canada getting its rightful recognition of these dollar benefits out of the treaty?

Mr. BARTHOLOMEW: The United States in this book here analysed all their own projects and they included all these considerations in the evaluation of the storage project.

Mr. KINDT: Yes. Now then, coming to this evaluation work, how many people would they have employed on a survey on the Columbia river, such as the one you have in front of you?

Mr. BARTHOLOMEW: You mean the people who made up this book?

Mr. KINDT: Yes.

Mr. BARTHOLOMEW: I would say that over a thousand people worked on it for ten years. That is purely a guess, but I do not see how they could do it in very much less time than that.

Mr. KINDT: In other words, would you say then that they have the whole gamut of technical people on the payroll either on the Columbia or on some other watershed, such as civil servants, and that they spend their lives at doing watershed development?

Mr. BARTHOLOMEW: Watershed and power development with associated interests, yes.

Mr. KINDT: Was a separate survey made when each of these ten separate dams was constructed?

Mr. BARTHOLOMEW: Are you speaking of United States dams?

Mr. KINDT: Yes.

Mr. BARTHOLOMEW: I am perfectly certain that a most comprehensive study was made of each of them.

Mr. KINDT: Did they have a separate survey made of watersheds when they built the Grand Coulee?

Mr. BARTHOLOMEW: Well, that is a bit hard to say. I would say that the watersheds had been basically pretty well defined.

Mr. KINDT: What I am trying to get at is this: you made a statement in paragraph seven about contradictions and apparent errors in Canadian documents and you pointed out your serious concern, and you mentioned something about the inadequacy of Canadian technical officers. It is well known that the United States has a large staff and we gathered that you had mentioned that there might be upwards of several hundred or a thousand people working on a study of this kind.

Mr. BARTHOLOMEW: At least that, yes.

Mr. KINDT: And that they might not spend their entire lives on the Columbia, but they would be moved around to various other sites, and you were contrasting that with the small number of Canadian workers. You did not mean, or did you mean, to say that Canadian technical people were incompetent?

Mr. BARTHOLOMEW: No, not incompetent.

Mr. KINDT: These are tremendous studies and they require very, very careful analysis over a long, long period of time. Is that what you mean in making that comparison?

Mr. BARTHOLOMEW: Yes, I do. In making that comparison I want to point out that all the names mentioned yesterday, or about half of them were employed on other jobs. The names of Messrs. Ramsden and Page were mentioned, and they were on other jobs. It is impossible to expect the kind of study that has gone into this U.S. report from the few people who have worked on the subject in Canada.

Mr. KINDT: What I wanted to get at was to clear the Canadian technical men from the thought that they are not efficient or competent, and that they are unable to do their job if given a chance to do so. Would you say that if they were placed under those conditions and opportunities with respect to the length of time to do the job and so on, they would do as good a job as those in the United States?

Mr. BARTHOLOMEW: There are no engineers in the world who can do a better job than Canadians. That is recognized today pretty nearly all over the world. But we are trying to do an impossible job here. That is all.

Mr. KINDT: In other words, on a United States survey they would have hydrologists, soil scientists, geologists, foresters, economists, flood control specialists, and about one lawyer, to take care of any legal questions.

Mr. BARTHOLOMEW: One lawyer per group.

Mr. KINDT: That is right, to look after land titles.

Mr. BARTHOLOMEW: Yes.

Mr. KINDT: And matters of international law and things of that sort. Is that right?

Mr. BARTHOLOMEW: They have a terrific legal staff in the U.S. interior department. They have a most wonderful staff there with the army engineers.

Mr. KINDT: Well, what I want to do is to turn over the page where you say—and I continue reading—that a large staff of specialists in law, economics and engineering were engaged in the project, developed and planned throughout the Columbia basin for 25 years and over—stopping there for a moment, some of those dams in the United States have been built for from 30 to 40 years, and they had surveys made at that time.

Mr. BARTHOLOMEW: I did not go to the trouble of dating them. I know they are over 25 years.

Mr. KINDT: You were making that as a conservative estimate.

Mr. BARTHOLOMEW: Yes.

Mr. KINDT: The absence of a corresponding Canadian staff has placed an impossible task on the Canadian team, and consequently Canada has suffered.

Mr. BARTHOLOMEW: Right, sir.

Mr. KINDT: Is it your thought that there is no discredit on Canadian scientists nor on the United States scientists, but that they simply have been working under handicaps.

Mr. BARTHOLOMEW: I think the Canadians have been working under an impossible handicap.

Mr. KINDT: I have one other question, but I do not wish to take up too much time.

The CHAIRMAN: Mr. Kindt, I want you to complete your questions.

Mr. KINDT: If there is somebody else who wants the floor—

The CHAIRMAN: No. You complete your questions, Mr. Kindt.

Mr. KINDT: I happen to represent the constituency of Macleod, which is just east of Kootenay, and Mr. Byrne joins me on the west. We have a good deal in common. In my area and further north we have about one seventh of the coal supply of the world. Thermal power now is developed by the east Kootenay plant there in the Crowsnest pass. That plant is not operating now. I meant to direct this question to the witness who was before you this afternoon, but I could not get the floor to do so.

The CHAIRMAN: Excuse me. I called your name this afternoon.

Mr. KINDT: I recognize that, but I had another engagement.

The CHAIRMAN: Yes.

Mr. KINDT: The Energy Commission of Alberta says that inside of 40 years over 40 per cent of the electric power will be generated by thermal rather than hydro; that is, the total amount produced at that time. Is it your thought that the competition between thermal and hydro power will come to a point where the cost, in comparison, will bring coal into use for electrical purposes?

Mr. BARTHOLOMEW: Quite possibly. Actually, in British Columbia we have a coal field at Hat creek, with which I think Mr. Davis had something to do. That coal field has enough coal to support a two million kilowatt plant. The engineering company of the old British Columbia Electric made several reports on it, and told their principals they could make power at Hat creek for three mills a kilowatt hour delivered to Vancouver in blocks of one million or two million at an 80 per cent load factor. The Calgary Power Company at Wabamun has 250,000 kilowatts and are putting in 300,000 at the present time. From the figures they gave me, their production costs are about three mills per KWH. So, in Alberta you have one of the cheapest sources of energy on this continent.

It is much less expensive than the Columbia, except on the initial development and before transmission. The payment by the United States of \$250 odd million lifts the Columbia development out of the impossible. The initial power would be cheap here. As they get it to its ultimate development, it still will cost more than the Calgary Power Company energy.

Mr. LEBOE: May I ask a supplementary question? You said they could produce thermal power at three mills delivered at Vancouver from Hat creek?

Mr. BARTHOLOMEW: Yes. I have a report here.

Mr. LEBOE: How many years ago would it be that those figures were taken?

Mr. BARTHOLOMEW: It is a 1960 report.

Mr. LEBOE: Four years ago.

Mr. KINDT: Then, it is a question of cost in respect of which source of energy you use, water or coal, and you are in an area there where you have an abundance of both. We often discuss the possibility of using coal and Calgary Power has given a good deal of thought to the development of electric power down in those parts in the Crowsnest pass, but has been reluctant to do so because of the hydroelectric development which may be in the east Kootenay. You have heard of those discussions?

Mr. BARTHOLOMEW: Yes. The Calgary Power has made several developments on the Bow river. Today, as I have mentioned, they are putting in 300,000 kilowatts of thermal power and have 250,000 KW running now. They will have another 300,000 running inside of two or three years at Wabamun, a few miles west of Edmonton.

Mr. KINDT: What possibility is there of development; in your view as an engineer what is your opinion concerning hydro compared to coal for the generation of electricity in that area.

Mr. BARTHOLOMEW: In which area?

Mr. KINDT: In east Kootenay or in the Crowsnest pass.

Mr. BARTHOLOMEW: Well, I think they will get it by thermal means—if they want it—just as cheaply as they can from hydro.

Mr. KINDT: But it will need to wait on the growth, and all the rest.

Mr. BARTHOLOMEW: Yes. It has to be analysed. I should not have attempted to generalize. I would like to withdraw that answer, because I do not know enough about the circumstances. If you give me all the facts and figures concerning it, by geography and all the rest, I will give an answer to you, but I would like to withdraw what I said.

Mr. KINDT: I have appreciated you as a witness, Mr. Bartholomew, and you have helped me clear up some points. Thank you very much.

Mr. BREWIN: Mr. Bartholomew, you discussed with Dr. Kindt the question of diversion for irrigation purposes. I would like to follow that up with you a little bit more fully. The right of diversion, of course, is for consumptive purposes which include irrigation.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: I would like to ask whether I have this straight in my mind. Both Canada and the United States—subject to the stated exceptions in article XIII of the treaty—are restrained from diverting in any way which would affect the natural flow at the boundary.

Mr. BARTHOLOMEW: Unless—

Mr. BREWIN: Yes; with the exception of consumptive uses and certain other provided things. I just want it clear in my mind to what that prohibition, in effect, would apply, leaving out exceptions for a minute. What are the rivers

or tributaries of the Columbia or, for that matter, any of the rivers we discussed which cross the Canada-United States boundary from the United States into Canada? There is the Mica and the Pend Oreille.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: Those are the two main ones.

Mr. BARTHOLOMEW: Yes, in the west.

Mr. BREWIN: Is there any likelihood of any substantial diversion at either of those two places? In other words, let us take them one by one; you told us last night, if my memory serves me correctly, that there is no likelihood of there being a diversion in respect of the Pend Oreille because of the works constructed at the boundary.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: Therefore, whatever may be the legal reinforcement of that there is no likelihood of that diversion occurring.

Mr. BARTHOLOMEW: There is no practical likelihood.

Mr. BREWIN: Is that equally true of where the west Kootenay or east Kootenay goes into the United States?

Mr. BARTHOLOMEW: The east Kootenay goes around the bend and back up into Kootenay lake.

Mr. BREWIN: Is there any practical likelihood for diversion other than for consumptive purposes at that stage by the United States? I am referring to a major diversion.

Mr. BARTHOLOMEW: I am not sure. I heard this subject discussed some months ago. The possibility of putting some of the Kootenay water into the Spokane river was discussed. Do you remember that, Mr. Davis?

Mr. DAVIS: I am afraid I do not.

Mr. BARTHOLOMEW: There was some talk of putting it into one of those streams but I did not look to see how they were going to get down the valleys and through the tunnels they would have to build. But, as I say, there was some talk and a semi threat to the effect the United States could divert Kootenay water in its own bend into one of those other watersheds. Perhaps it was the Flathead. But, I cannot remember. I never studied this and I do not know what the feasibility is. However, technically, I suppose it is possible.

Mr. BREWIN: Then, on the other side of the picture there are quite a number of potential diversions on the Canadian side where the Canadian part of the rivers are upstream. We have discussed a diversion into the Fraser.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: And, a diversion by means of pumping across the mountains. Are there any other diversions which are practicable? For instance, is it practicable to divert into the Okanagan river?

Mr. BARTHOLOMEW: Well what is not practicable today may be a totally different story tomorrow; in 10, 20 or 30 years this question of water is going to become almost a crisis for the whole of the human race, certainly on this continent. I suspect in 20, 30 or 40 years you will see a most astonishing development in water diversion on a scale we do not think about today. It is purely a guess on my part but I think most engineers will agree with me in this respect.

Mr. BREWIN: Mr. Bartholomew, you did talk about the right of diversion for irrigation when Dr. Kindt was questioning you.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: Of course, you were not giving any opinion whether the treaty preserved the right of diversion out of the basin into a multiple purpose project which would include both irrigation and, to some extent, power.

Mr. BARTHOLOMEW: Some power, but—

Mr. BREWIN: You do not agree.

Mr. BARTHOLOMEW: No. As the treaty reads, I would say even where the power is incidental and your main purpose is consumptive use that I cannot agree with Mr. Martin that incidental power development is permitted.

Mr. BREWIN: It excludes that right as you read it.

Mr. BARTHOLOMEW: Yes, as I read it.

Mr. BREWIN: Some people think this is a great legal question but I think it is quite obvious.

Mr. BARTHOLOMEW: It is just what it says.

Mr. BREWIN: Now, if I can go to another point, I am not clear in respect of this matter of diversion. Article XIII gives certain specific rights of diversion, and we had some discussion about that before. I am not clear on it myself. So far as you are concerned, how does it work in?

Mr. BARTHOLOMEW: Are you referring to article IV of the treaty?

Mr. BREWIN: Article IV, clause (5).

Mr. BARTHOLOMEW: Or article XIII?

Mr. BREWIN: Article XIII, clauses (2), (3) and so on give certain rights of diversion.

Mr. BARTHOLOMEW: Yes.

Mr. BREWIN: Is that affected in any way by article IV clause (5), which requires Canada to operate in a way that does not adversely affect the stream flow into the Columbia river so as to reduce the flood control and the hydro-electric power benefits. Would it be possible for a diversion to have an adverse effect and, therefore, be prohibited by article IV clause (5).

Mr. BARTHOLOMEW: This is one of the several illogical contradictions in the treaty. I say those two clauses are irreconcilable in the same way that clause 7 of annex (b) is irreconcilable with step (1).

Mr. BREWIN: May I suggest to you, you can reconcile them by saying the right of diversion, being a more general right, was subject to not offending against article IV, clause (5), which is perhaps more specific. In other words, you have to read the general provisions about the right to divert to be subject to the obligation under the earlier part of the treaty.

Mr. BARTHOLOMEW: This is one of my constant complaints against this document; it fails to state in clear, simple and precise English what they are trying to say and, in every aspect it is confused, contradictory and uncertain. This frightful contrast, as I mentioned earlier, is brought out when you look at that interpretation which the very writers of this treaty issued a month afterward in beautiful, clear and understandable English. One cannot help feel it is deliberately written this way to confuse and deceive.

Mr. RYAN: Mr. Chairman, I have a supplementary question to Mr. Brewin's question.

Is it not true that article IV clause (5) only applies during the life of the treaty and after the treaty is terminated under article XIX clause (5) of article IV would no longer apply? Article XIX is at page 142 of the blue book.

Mr. BARTHOLOMEW: You referred first of all to article V of the treaty?

Mr. RYAN: Clause (5), the same reference which Mr. Brewin gave you, sir.

Mr. BARTHOLOMEW: Article V?

Mr. RYAN: Article IV, clause (5) at page 120 of the blue book, which I think you have there.

Mr. BARTHOLOMEW: This reads:

Any water resource development, in addition to the Canadian storage, constructed in Canada after the ratification date shall not be operated in a way that adversely affects the stream flow control in the Columbia river within Canada so as to reduce the flood control and hydroelectric power benefits which the operation of the Canadian storage in accordance with the operating plans in force from time to time would otherwise produce.

Now, you are questioning whether you can effect any diversions in the face of that.

Mr. RYAN: I am saying this clause does not apply after the treaty is terminated under article XIX; it only applies during the life of the treaty.

Mr. BARTHOLOMEW: But the Boundary Waters Act, if still in force, still applies. Under the Boundary Waters Act, if you are the injured downstream country you have the right to sue in the upstream country for any injuries you suffered downstream.

Mr. RYAN: But these provisions likely would come back into effect at that time unless some other agreement is arrived at.

Mr. BARTHOLOMEW: Today it is regarded as a breach of the treaty, if you do it.

Mr. RYAN: Dr. Kindt is quite out of order in suggesting that we must deliver water forever, because the Boundary Waters Treaty comes back into effect at the termination of this treaty, is that right?

Mr. BARTHOLOMEW: We have to store water for ever. There is no choice in that regard.

Mr. RYAN: Why must we store water forever? All we have to do is provide flood control; is that right?

Mr. BARTHOLOMEW: The provision of flood control involves the storage of water.

Mr. RYAN: We do not have to give them the water.

Mr. KINDT: The water is stored for exactly that purpose.

Mr. BARTHOLOMEW: We are filling the reservoirs and we have to let the water out again before the flooding season. We have to provide storage and release. We have to empty the reservoirs before the flooding season, which occurs at the beginning of May. We must release the water in order to provide sufficient space in the reservoirs to look after flood conditions.

Mr. RYAN: Sufficient space would be provided in these reservoirs or elsewhere if we diverted the water.

Mr. BARTHOLOMEW: If we diverted the water to the Fraser, I would certainly agree to it. I would very much like to see that happen.

Mr. RYAN: There would be no problem in that situation?

Mr. BARTHOLOMEW: A Fraser diversion would meet my support.

Mr. DEACHMAN: Mr. Chairman, I should like to ask one or two supplementary questions to those asked by Dr. Kindt. I think the witness has covered this subject in reply to questions asked earlier.

Mr. Bartholomew, I think your testimony has indicated that you have two feelings about this situation. Firstly, you object to the treaty on the grounds that it is not a treaty in the best interests of Canada and, secondly, in your opinion it is a treaty which results in a loss to Canada because of the preponderance of United States technical assistance; is that right?

Mr. BARTHOLOMEW: I think you are correct, sir. When I referred to technical assistance I included both legal and technical knowledge.

Mr. DEACHMAN: I understand that was your general expression of opinion?

Mr. BARTHOLOMEW: Yes.

Mr. DEACHMAN: In regard to your second point I take it you have made the assertion that a preponderance of technical assistance was available to the United States and not to Canada, but not as a result of the incompetence of Canadians. You have stated that some of the Canadians involved were among the most competent in the world, but apparently owing to the number of people directed to this project by the United States an advantage resulted.

Mr. BARTHOLOMEW: Yes.

Mr. DEACHMAN: In view of the fact we are concerned with the Canadian problem, and I am not including the Libby project in that statement, do you feel that the United States had more people examining the flow of rivers in Canada and Canadian soil conditions than Canadians?

Mr. BARTHOLOMEW: You are suggesting that Canadians should have done an equivalent amount of investigation; is that right?

Mr. DEACHMAN: No. We may be dealing with that situation at a later time. Do I understand that you feel the preponderance of technical assistance available to the United States was directed toward investigations in respect of the Canadian aspect of this development?

Mr. BARTHOLOMEW: Their investigations were directed to both sides of the Columbia basin. I must state that United States technicians informed themselves as comprehensively in respect of Canadian conditions as they did in respect of United States conditions.

Mr. DEACHMAN: I should like to direct my questions toward considerations of the Canadian side of these investigations. Do you believe that the United States technicians gained an advantage because of a preponderance of knowledge of the conditions of the Canadian side of this development?

Mr. BARTHOLOMEW: Yes, but that gives only one side of the story.

Mr. DEACHMAN: Perhaps I could take this situation one step further. When you say what I have suggested is only part of the story do you mean that the United States technicians acquired more information about the Canadian Columbia river basin and structures to be built in Canada than Canadian technicians were able to gain?

Mr. BARTHOLOMEW: I have no doubt whatever that the United States technicians have a very sound knowledge of what Canadians can do.

Mr. DEACHMAN: Do you think they have better knowledge of the conditions in Canada than our technicians have?

Mr. BARTHOLOMEW: I suggest the United States technicians have a very sound knowledge of what we are able to do. I have no knowledge of a first hand nature so I am unable to say what information they have gained.

Mr. DEACHMAN: I do not wish to interrupt the trend of your thought in this regard but I should like to take this discussion along one step at a time. You were quite categorical yesterday and today in stating that as a result of the preponderance of United States technical knowledge they gained an advantage over Canada in regard to the manner in which this treaty was drawn. I should like to find out whether or not in your opinion the United States technicians were able to acquire greater knowledge of Canadian conditions, and conditions involved in respect of structures to be built on the Canadian side than Canadian technicians were able to gain.

Mr. BARTHOLOMEW: I cannot answer that question definitely. I think your suggestion is a possible one.

Mr. DEACHMAN: It is possible that the United States Technicians did not acquire greater knowledge?

Mr. BARTHOLOMEW: It is my opinion that either one or the other of your suggestions is correct.

Mr. DEACHMAN: In other words, you are not now sure that the United States technicians had a preponderance of technical knowledge?

Mr. BARTHOLOMEW: You have not allowed me to answer the question. In respect of a project of this type what is needed is a comprehensive understanding of the entire situation of the Columbia basin in the United States and in Canada. You are never going to accomplish anything by knowing something of the Canadian situation only if you do not know something of the United States situation. When you are negotiating a treaty of this kind you must know the situation in the United States and the situation in Canada extremely well, and I do not think we knew as much about the Canadian situation as the United States technicians knew about the United States situation. I do not think we knew much, comparatively, about the United States conditions in the Columbia basin, and I am sure the United States technicians had an extremely good idea about the Canadian conditions in the Columbia basin.

Mr. STEWART: Mr. Chairman, I should like to ask a supplementary question. Is Mr. Bartholomew of the opinion that this inadequacy of which he speaks resulted from incompetence?

Mr. BARTHOLOMEW: Yesterday we were given some information about the four members of the Canadian team. We were told that they all had jobs other than working on this Columbia river treaty. This was a very small team. One man was a water controller, one man was a water recorder, and the other men were doing other jobs. This group was considered to be the Canadian team. They did not have a ghost of a chance of competing with the United States technicians. It cannot be expected that men on half time employment in respect of a project of this type will accomplish as much as men on full time.

Mr. STEWART: Would you say that Mr. Gordon MacNabb worked half time in this regard?

Mr. BARTHOLOMEW: Actually Mr. Gordon MacNabb was working on a coordinating committee in respect of a Quebec-Ontario use of dam created storages. He did not confine his entire efforts to this job. I think that is right, is it not, Mr. MacNabb?

The CHAIRMAN: Mr. Deachman, have you completed your questions?

Mr. DEACHMAN: No, I have not quite completed my questions.

Mr. Bartholomew, I think we have established that you are now not at all certain that it was the preponderance of technical assistance available to the United States technicians which resulted in their superior knowledge of the Canadian operation?

What in effect the witness now said is that the United States knew as much as we did but they also had a knowledge of their own side of the river which was of inestimable value in drawing up this treaty. What is it precisely that they knew about their own side, or what is it that must be known about the United States side of the river in order to conclude a treaty relating to installations on the Canadian side? I think I can suggest to you something we would want to know: We would want to know the amount of water we were delivering across the border, and we would want to know the amount of power that would generate on the other side through existing equipment, in order that we could come to some equitable decision. I submit that all this data were not only available but that computers were available, owned by the United States, to run out data for any answer we might want to have. Is this not so? We could run by computer any test we wanted in relation to what that flow would do to the existing installations relative to the treaty and the proposals which were under discussion.

Mr. BARTHOLOMEW: You know, sir, in business you have to have a clear understanding of the value of your goods to the other man and the cost of making your goods before selling them.

Mr. DEACHMAN: Did you not have that?

Mr. BARTHOLOMEW: We have never published any reports. We have been very, very silent about the work that has been done. I know perfectly well that no one has had time to do it. If you look at the vast quantities of United States reports that have been coming out continuously you will recognize that they have had these advantages.

Mr. DEACHMAN: I do not recognize this. I have not been able through my questioning to bring you to a clear definition of this question of lack of technical support which beat us at the bargaining tables. I am not able to get from you a concrete definition that anyone in this room can understand in relation to this.

Mr. BARTHOLOMEW: I am sorry, I have endeavoured to make my interpretation of the situation reasonably clear. I do not think we have the strength, the variety, the concentration in personnel to do this. I am perfectly certain that many of our Canadians have been working all hours of the day and night for the past 12 months. It is perfectly ridiculous.

Mr. DEACHMAN: I do submit with respect that these are generalities.

I have one more question. Can you point to a single area and specify what knowledge we did not have which would have been available to use had we this preponderance of skill on our side?

Mr. BARTHOLOMEW: We should have been able to write the treaty and we were not able to do this.

Mr. STEWART: A few moments ago Mr. Bartholomew addressed a question to the room with the suggestion that Mr. MacNabb is here and is prepared to give an answer. Just to have the record straight I want to establish the fact that Mr. MacNabb was not then present.

The CHAIRMAN: Your point was that Mr. MacNabb was in the room.

Mr. RYAN: The fact that he was not in the room should be on the record.

Mr. DEACHMAN: I have one more question. I think it follows from what you have said and from your assertions here that you yourself could write a better treaty. I would like to ask you, could you yourself write a better treaty?

Mr. BARTHOLOMEW: Yes, today, four years after. I have been studying the wretched thing since January 1961. This was prepared in less than a year.

Mr. DEACHMAN: You could do that giving regard to the fact that there is still a preponderance of engineering and technical skill available to the United States which you will not have? Would you be able to write a better treaty?

Mr. BARTHOLOMEW: So can Mr. MacNabb, so can everyone else down there.

Mr. DEACHMAN: Thus, although this preponderance of skill is not available to you, you could write a better treaty?

Mr. BARTHOLOMEW: We could write a better treaty if we were starting out with a clean sheet today. You would see nothing like this, I can assure you.

Mr. DEACHMAN: So it is a case of your setting your own opinion and your capabilities against the capabilities of the Canadian team?

Mr. BARTHOLOMEW: On the contrary. I just said the Canadian team could write a highly satisfactory treaty if they ever started today.

Mr. DEACHMAN: Under your guidance?

Mr. BARTHOLOMEW: No, they do not need me; they have four years' experience, and if they cannot do that job I will eat my hat.

Mr. DEACHMAN: What happened when they were writing the treaty?

Mr. DAVIS: And the protocol?

Mr. BARTHOLOMEW: They were too crowded.

Mr. STEWART: You were suggesting we were on the beam back in the 1960's. It seems to me you are saying that the more we learned about this, the worse the document became.

Mr. BARTHOLOMEW: The protocol makes me sad; I quite agree.

Mr. RYAN: I have a supplementary question. Would you write into your treaty a guarantee on the amount of water from the Libby each month? You said that one of the things you would have is a guarantee of the amount of water each month.

Mr. BARTHOLOMEW: There is no reason whatsoever why that should not be written into the treaty.

Mr. RYAN: How do you explain the fact that one of the Cominco men who testified for the west Kootenay plant stated that because they have to reduce the level of the Kootenay lake at certain times of the year for practical reasons the water from the Libby would not be wanted on a set monthly basis? He said they wanted to be free to negotiate to the best interest of all the parties. How do you explain that?

Mr. BARTHOLOMEW: West Kootenay are in a unique position. They have a plant at Waneta with a 360,000 kilowatt capacity. They will have a tie-up with the United States at the end of this year and they will have an interchange agreement which will be just like velvet. It is the most favourable situation of any company that I know in Canada.

Mr. RYAN: Should we not recognize that fact then and have some regard for it?

Mr. BARTHOLOMEW: It is one of the reasons why the west Kootenay is quite indifferent. If you were going to build a 300,000 kilowatt plant, the so named Canal plant on the Kootenay river between the lake and Brilliant, and if you could not be assured of a regular flow of water, not necessarily as much as the average but a minimum critical flow of water through your plant, you could not afford to build it. If you were in business to make money and earn yourself an income out of it, you would not build that plant on the Canal site on the Kootenay river without an assurance that some Kootenay minimum flow be maintained. The minimum average flow is about 16,000 c.f.s. average per year and the maximum average is about 28,000 c.f.s. You have to have a guarantee that they would leave let us say, 15,000 cubic feet per second. This still gives them control of the bulk of the water. You would not dare build a plant without that guarantee.

Mr. RYAN: Apparently they say they are going to do it when their load warrants it—

Mr. BARTHOLOMEW: I know. They have Waneta. Waneta is the whole answer to that.

The CHAIRMAN: Mr. Herridge and Mr. Kindt have supplementary questions.

Mr. HERRIDGE: I would like to ask Mr. Bartholomew this question: do you think the opportunity to take the time to give this matter the fullest consideration necessary to secure the facts, the political circumstances in respect of the situation in the United State Senate, the desire of the United States government not to re-negotiate, and the circumstances that exist in British Columbia, had a damaging effect or some effect on the opportunity to draft a treaty to the advantage of this country?

Mr. BARTHOLOMEW: I am afraid, sir, I strongly hold that view.

Mr. KINDT: Mr. Bartholomew, I do not want to prolong the meeting but I would like to ask you if it is your view, in the light of what you have said, that this is a United States plan for the watershed?

Mr. BARTHOLOMEW: I think that is a good description of it. It fits in with the United States optimum advantage, yes.

Mr. KINDT: Would you say, Mr. Bartholomew, that the plan which we are adopting fits like a glove into the plans of the United States?

Mr. BARTHOLOMEW: Yes. Mind you, they have offered to provide \$250 million, rather regretfully, and they have taken quite a lot out in exchange. Two hundred and fifty million dollars is not one third of what the alternative would cost them, so it is not too bad an agreement. Therefore, it does fit them very nicely.

The CHAIRMAN: I am about to recognize, I hope, the last member to ask questions of this witness.

Mr. HERRIDGE: Mr. Bartholomew, when I spoke in the House of Commons, in order to emphasize the increasing costs in construction and the uncertainty of costs I quoted some figures with respect to the cost of building certain projects by the British Columbia hydro, or the British Columbia Power Commission prior to that, over a number of years. This was raised in the committee and Dr. Keenleyside did not agree with it. He gave the committee evidence that the tendency was that construction costs would be lower than estimates in the future owing to changed circumstances.

Mr. BARTHOLOMEW: I think that is a very optimistic hope. The experience not only of the British Columbia hydro, who have been very unfortunate, but of others, has been otherwise. I had a complete tabulation of the estimates and costs of many projects by the British Columbia hydro in the past 15 years but unfortunately I do not have it with me. If I think of Strathcona, which is a power plant on the Campbell river, I can tell you that the original estimates for that were—and if I am wrong perhaps Mr. Davis can correct me—\$250 or \$300 per kilowatt, and yet it stands on the books of the British Columbia hydro today at about \$1,000 per kilowatt. The thermal plant at Chemainus was originally estimated at between \$13 million and \$14 million. I think you will find it stands on the books at \$16 or \$17 million, and that is not a difficult plant to build. I suppose they had bad luck.

Mr. LEBOE: On a point of clarification, are these earth filled dams to which you are referring? The Peace river dam cost \$33 million under the estimate.

Mr. BARTHOLOMEW: Well, that will not be too bad. Strathcona was an earth filled dam and it washed out and they had bad times. It cost \$1,000 per kilowatt, which is more than you can afford to pay for hydroelectric plants.

Mr. LEBOE: The book value is not necessarily related to cost.

Mr. BARTHOLOMEW: No, except you only have to add the depreciation. I think the depreciation rate here is fairly low. The cost of La Dore Falls on the Campbell river stands on the books at \$12 million. I know it cost more than 25 per cent over the estimate. The Port Mann bridge which they have not opened yet, was estimated at \$12 million four or five years ago and it is running at \$19 million or \$20 million now. We have had very bad luck on all of our major civil engineering works in the west, and I think you have had some bad luck in the east too for that matter where costs have far exceeded estimates. I do not know of any major civil engineering project that has been carried out in such a fortunate way as to have cost less than the estimate. They tell us they have lower contract prices on the Peace river dam, but they have reduced the height of it by 10 per cent, you see, which tends to reduce the volume by about 30 per cent. Am I right, Mr. Davis? That reduces its generation capacity by about 20 or 25 per cent, does it not?

Mr. DAVIS: I do not know.

Mr. LEBOE: The figures are not relevant to the question because the estimates did include the lower level; they were estimated on the level.

Mr. BARTHOLOMEW: To which are you referring now?

Mr. LEBOE: The Peace river dam.

Mr. BARTHOLOMEW: I have the report of the Peace river engineering in my office. I have forgotten whether it was 500 feet or 550 feet, but it had been reduced by 50 feet below the estimate which British Columbia Engineering Co. prepared. I think I am right there, Mr. Davis?

Mr. DAVIS: I was not following, I am afraid.

Mr. BARTHOLOMEW: The height of the dam has been reduced by 50 feet.

Mr. DAVIS: That is right.

Mr. LEBOE: But that was not included in the \$99 million. The figure was estimated at more than that before they reduced the level of the dam. You have to keep it relative and in its context.

Mr. BARTHOLOMEW: I do have all the original estimates in my office, but I cannot remember them now. You may be quite right.

Mr. LEBOE: Dr. Keenleyside made the point that it was due to the fact that they were using a new conveyor system and were therefore able to bid at a lower price. This may apply in the Columbia river.

Mr. BARTHOLOMEW: We have been using conveyors for years. The bigger the job, the bigger the conveyor. We have been using conveyors for moving rock, coal and dirt for a long time. In Egypt they are putting in a fabulous conveyor for the Aswan. Each one has to be specially designed.

Mr. LEBOE: It is the design that they are using in this particular case that is the critical point.

Mr. BARTHOLOMEW: It will be one of many scattered throughout the world.

Mr. DAVIS: I have the impression, Mr. Bartholomew, that you believe there are substantial irrigation benefits in the state of Washington, for example, which should be shared with Canada but which are not discovered by the treaty. You believe we do not get these benefits; is that so?

Mr. BARTHOLOMEW: I agree that the benefits are there. I never claimed that they should be shared with Canada. As far as irrigation is concerned, it is a very small thing anyhow, and I was not prepared to argue about it. I would say we ought to be able to get something more or less equivalent. Have I answered your question?

Mr. DAVIS: Can irrigation benefits not be achieved with the river in its present state? In other words, can the United States not irrigate with those waters coming down in the summertime without Canada doing anything?

Mr. BARTHOLOMEW: Of course they can. The only time when irrigation water becomes important is when the river is fully developed in a critical period, and you are not going to waste a drop of water. Whether you take it out for irrigation, for navigation, or for anything else, it is lost power. But that would only happen once in so many years. Generally speaking this is about the only importance that irrigation can achieve in the picture, and it is very small.

Mr. DAVIS: If you were rewriting the treaty, you would not include irrigation benefits as payment to Canada?

Mr. BARTHOLOMEW: No. But I might think about navigation benefits, and I might think about water for major abstraction. I do not know.

Mr. DAVIS: Thank you.

Mr. KINDT: I have a supplementary question. I could not let the matter go without one. On a multiple purpose project you have to take in all benefits to arrive at a cost benefit ratio.

Mr. BARTHOLOMEW: That is right.

Mr. KINDT: Do you mean to say that you would not take in all the benefits and also take out the adverse, negative benefits?

Mr. BARTHOLOMEW: If I could get a deal by leaving out one half or one per cent for the other man, I would be happy to give him that much. It is not easy business trying to extract the last percentage. Sometimes you may want it, but if you cannot otherwise get a deal, one would forgo that one or one half per cent just for the sake of closing a contract.

Mr. KINDT: Do you think that irrigation would only be one half or one per cent?

Mr. BARTHOLOMEW: I think so, but why not ask Mr. Davis?

Mr. KINDT: In view of the fact that the long time use is for water?

Mr. BARTHOLOMEW: It creates a tremendous value to the United States in the value of their land, but it extracts very little water, and I think I would be prepared to let them have it.

The CHAIRMAN: Now, gentlemen, if that concludes the questioning of Mr. Bartholomew, I think we all owe it to our witness to thank him on behalf of us all. He has been a valiant defender of his cause. He came here this afternoon and for a time worked without notes. We are very grateful to you, sir, and we have enjoyed your being with us very much.

Now we shall meet sharp at nine o'clock tomorrow morning to have the opportunity of hearing Mr. Larratt Higgins. I will ask you all to be here.

Mr. BARTHOLOMEW: May I thank you all very much for your consideration, kindness, and courtesy. It has been a treat.

HOUSE OF COMMONS

Second Session—Twenty-Sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 16

WEDNESDAY, APRIL 29, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

Mr. Larratt Higgins

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

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Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS AND EVIDENCE

WEDNESDAY, April 29, 1964.

(29)

The Standing Committee on External Affairs met at 9.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Fleming (*Okanagan-Revelstoke*), Gelber, Groos, Haidasz, Herridge, Kindt, Leboe, Macdonald, Matheson, Patterson, Ryan, Stewart, Turner Willoughby.—(19).

In attendance: Mr. Larratt Higgins.

The Chairman introduced the witness and reminded the committee that he had previously read into the record a letter from Mr. Higgins' employers the Hydro-Electric Power Commission of Ontario, stating that any opinions expressed by Mr. Higgins before the committee are his own personal and individual views. (*See Proceedings, Monday, April 20, 1964, Issue No. 9.*)

Mr. Cameron, seconded by Mr. Herridge, moved that the briefs of the Montreal Engineering Company Limited and Mr. Larratt Higgins be included as appendices to the printed proceedings, but that no future briefs be included in the permanent record. The question having been put, the motion was negatived in the following division: Yeas, 2; Nays, 8.

The witness provided an amended copy of page 80 of his brief and copies were distributed to the members.

Mr. Higgins' brief having been previously distributed to the committee, the witness summarized his opposition to the Treaty, and was questioned.

The questioning continuing, the committee adjourned at 11.00 a.m. to reconvene at 4.00 p.m. this day.

AFTERNOON SITTING

(30)

The Committee reconvened at 4.00 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Gelber, Groos, Haidasz, Herridge, Kindt, Laprise, Leboe, Macdonald, Matheson, Nesbitt, Patterson, Ryan, Stewart, Willoughby.—(19).

In attendance: Mr. Larratt Higgins.

The Chairman reported that correspondence has been received from the following: Mr. F. Tomkinson, Vancouver; Mr. E. W. Williams, Burton, B.C.; Mr. John Stanton, Vancouver; Mr. C. R. Spice, Nakusp, B.C.; Mr. R. Deane, Rossland, B.C.

The Committee resumed questioning of the witness.

The questioning having concluded, the Chairman thanked the witness on behalf of the committee, for having brought his views to their attention.

At 6.15 p.m., the committee adjourned until 9.00 a.m., Friday, May 1, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

WEDNESDAY, April 29, 1964.

The CHAIRMAN: Gentlemen, I see a quorum.

The witness this morning is Mr. Larratt Higgins who in 1949 graduated from the University of Toronto in political science and economics. In 1951 he graduated from the University of Cambridge in economics. Perhaps it would be useful for you to indicate your degrees, Mr. Higgins.

Mr. LARRATT HIGGINS: I have a B.A. from Toronto and a B.A. and M.A. from Cambridge.

The CHAIRMAN: In 1951 Mr. Higgins joined the Ontario hydro treasury operations. His relevant experience included working out operating procedures to permit maximum power production within the terms of the Niagara river treaty, 1950. This treaty gave rise to difficult operating problems not foreseen at the time of signing.

In 1958 Mr. Higgins was on loan to the Department of Trade and Commerce from the Imperial Tobacco Company as technical adviser and worked on an interdepartmental committee on the Columbia river. In 1958 he became economist with the Ontario hydro and has remained so until 1964.

Mr. Higgins is a member of the Canadian Institute of International Affairs, the Canadian Political Science Association, the Toronto area research conference and the business economists group of the Canadian Manufacturers' Association.

I read a letter to the committee I received from the Ontario hydro indicating that Mr. Higgins is here today on his own authority and will present his own views. I think I am accurate in stating that to be the substance of that letter.

Mr. HIGGINS: That is correct.

Mr. LEBOE: Mr. Chairman, I should like to make a suggestion at this point in an endeavour to save the time of the committee, and I assure the members of this committee that is the only reason I make these remarks.

Perhaps when Mr. Higgins goes through his statement he will indicate the points it contains which are opposed to General McNaughton's view as well as the points of view presented by other individuals. Many sides of this problem have been thoroughly aired in this committee and in an attempt to save time perhaps during Mr. Higgins' summary he could outline those points in his brief which have not been presented or which are in opposition to the presentations we have received to date. I only make this suggestion with the hope that we will save some time.

The CHAIRMAN: Thank you Mr. Leboe.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I should like to refer to one matter and I fully realize that I am in a poor position to do so at this time. Most of us have read this brief prepared by Mr. Higgins and agree that it is perhaps the clearest and most lucid presentation for his side of the questions that we have received to date.

I consulted Miss Ballantine this morning and she informed me that the brief presented by the Montreal Engineering Company has not been included as part of the Minutes of Proceedings and Evidence. I think that brief is perhaps the most lucid and coherent argumentation in support of the other side. I should like to suggest that both these briefs be included in the permanent record of the proceedings of this committee.

Mr. Chairman, the members of this committee have more than one responsibility which, as we all know, is the traditional one of recommending to the house what should be done in respect of the treaty. We have that further responsibility, which I think is an equally important one, of leaving a coherent record of the presentations and our deliberations. Unless we do this, anyone in the future who is trying to grasp what took place will be thwarted in any attempt to do so.

For these reasons, Mr. Chairman, I should like to move that Mr. Higgins brief and the brief presented by the Montreal Engineering Company be included in the Minutes of Proceedings and Evidence of this committee so that anyone doing research in the future will have this source of coherent information available.

I should also like to state that we should decide at this time that no other briefs will be made part of the permanent record.

The CHAIRMAN: Mr. Cameron, I certainly invite any member to speak on this matter, but it seems to me, in view of the discussions which took place yesterday in relation to the inclusion of the brief presented by the Consolidated Mining and Smelting Company, that your position is not very sound.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I am well aware of that, Mr. Chairman, I am not in a very good position to make such a request this morning.

The CHAIRMAN: I am wondering how we can reconcile what we did yesterday with what you are suggesting today. We must bear in mind the great number of witnesses that we will hear in future.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): The evidence of those witnesses will appear as part of the record but not their presentations.

The CHAIRMAN: The submission of Mr. Higgins has been distributed and studied carefully and I hope that the examination to take place today of Mr. Higgins will be complete and searching.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I realize that we will be able to fully examine Mr. Higgins but I had in mind individuals in the future trying to research the deliberations of this committee, and inclusion of the two presentations I have mentioned would be of great assistance to anyone attempting such a task.

Mr. MACDONALD: Mr. Chairman, I should like to make one or two remarks in this regard. Mr. Cameron was kind enough to speak to me this morning indicating it was his intention to make such a motion.

The CHAIRMAN: Are you going to second this motion?

Mr. MACDONALD: No, I am going to speak against it.

The CHAIRMAN: Perhaps we should have it seconded first.

Mr. HERRIDGE: I second the motion.

Mr. MACDONALD: Mr. Chairman, I certainly agree that this is perhaps the most articulate presentation we have received to date on behalf of those individuals opposed to the treaty. I should like to point out that the government, which presented the treaty and protocol to this committee for ratification, has not attempted to have included in the record the very voluminous conclusions set out in the presentation paper or those submissions of the various expert witnesses on soils and other various engineering aspects. The government has not attempted to have the report presented by Mr. Sexton or the engineering reports of Caseco and the Montreal Engineering Company included in our permanent record. If any fair presentation is to be made in this way I think we should have a great deal of additional information included from the various relevant sources. Under those circumstances I feel that this would

require the printing of several thousand additional pages and I personally do not favour this motion.

Mr. LEBOE: I am not in favour of the motion, Mr. Chairman.

Mr. BYRNE: Mr. Chairman, I honestly believe that the question of deciding on the lucidity of these briefs is a personal matter, and any one of us may determine that we feel certain briefs are clearer and more articulate than others. Yesterday I asked to have a brief presented by the people who have been in the business of hydro development for over 60 years put on the record, but it was not considered necessary. Others we have been hearing are more theoreticians than actual practitioners. This is simply a matter of opinion and I see no reason to deviate from our present course.

Mr. LEBOE: I just wanted to register my opposition to this course.

The CHAIRMAN: Gentlemen, are you ready for the question? These in favour? Two. Those opposed? Eight.

I declare the motion lost.

Mr. HIGGINS: Mr. Chairman, before I start my remarks this morning I would like to echo the reminder that you gave us and say that although I am employed by Ontario hydro, the Ontario hydro as such is neutral in this matter and therefore I am speaking entirely on my own initiative as a private citizen.

Mr. BYRNE: Do I gather, from your statement Mr. Higgins, that it is a statement of fact that Ontario hydro are neutral, or are they just not expressing an opinion?

Mr. HIGGINS: That is a statement of fact. Ontario hydro produces and distributes electricity in the province of Ontario, and therefore it can have no official position on developments in British Columbia.

Mr. Chairman, the members have had copies of my presentation distributed and therefore there is no necessity to read it into the record. There is also the fact that this is a fairly long presentation. However, there are certain points in it which I would like to emphasize, and if it is agreeable to the members I propose to go through this brief in the same manner as the Secretary of State for External Affairs went through the government's presentation; in other words, picking out relevant passages as I go along. There is no necessity at this point for me to deal with any of the geographical features of the Columbia basin because I am sure the members of the committee are as familiar as anyone in Canada with that at this point of the proceedings.

The argument in the presentation begins on page 9 where there is a discussion of the various storages which were discovered in the upper Columbia river basin following the reference to the International Joint Commission in 1944 at the initiative of the United States. The idea behind this particular presentation is to try to explain what the purpose and function of each one of these storage reservoirs discovered in the upper Columbia basin was on the one hand from the point of view of Canada and on the other hand from the point of view of the United States. I think this gives a useful background into how the conflicting positions of Canada and the United States arose, which of course made it necessary for us to negotiate for a solution.

As far as the Libby dam is concerned, this is the one major storage in the upper Columbia basin where the dam is located in the United States but the reservoir would flood the boundary to a depth of 150 feet and the surface area of the reservoir in Canada would be some 17,600 acres, stretching some 42 miles into Canada. The Libby dam is not an economic proposition without this incursion into Canada, and in order to build it the United States would require, under Article IV of the Boundary Waters Treaty of 1909, the consent of Canada.

Within the United States there is some difference of opinion as to the merits of the Libby dam from an economic point of view. As a matter of fact, the way the chief negotiator of the United States team in the treaty put it is this: he said that viewed strictly as an economic production machine the Libby dam is marginal, and the principal reason for the United States to justify its inclusion is the fact that it provides very much needed flood control in the Bonners Ferry area of Idaho. This factor I think introduces what might be called one of the constraints of the problem. I think it is probably agreed between Canada and the United States that any solution on the Columbia must at least provide for flood protection in the Bonners Ferry area in Idaho and to a lesser extent in the Kootenay flats area in Canada. The annual damages are estimated on the United States side at \$815,000 per annum on the average, while on the Canadian side it has been rather more difficult to derive data but the only estimate which I have seen so far is a figure of an average annual damage of \$30,000 a year.

Members may be interested in knowing that one of the reasons for the very long period of study by the I.C.R.E.B. from 1944 until a report came in 1959 was the fact that the Canadian portion of the basin was virtually unexplored territory. I understand that the best map of that area available at that time had been prepared by David Thompson over a century earlier. When the investigations got under way one of the sites found in the upper Columbia was the Mica creek storage which is an extremely large storage dam. It was recognized quite early that the large storage at Mica creek would be a key feature in the development of the basin for at site power from the Canadian point of view. Also, this very large storage capacity could be used to provide benefits to the United States, benefits both in power and of a flood control nature. The capacity estimated by the international engineering board was a little bit under 11.7 million acre feet. Since then various figures have been thrown around—12 million acre feet, 7 million acre feet and 20 million acre feet. All these can be reconciled by the fact that the 26 million acre feet refers to the total amount of water which will be contained in the dam when it is full. The others are variable quantities because the capacity of the dam depends on how far down the water is drawn, and this in turn will depend upon the elevation at which the outlet works are located. Another constraint on the capacity of the Mica creek dam is the annual supply.

The problem is that in a storage of this size, if you draw the storage down and empty it, it is so large that there may be a problem of refilling it each year. At any rate, it is a very good storage site. It is one of the non-controversial sites in that it is included in both the proposals of the United States and of Canada. The Canadian approach to Mica creek, because of the large capacity of this dam relative to the local supply, is that the dam would be more effective if the supply could be increased, particularly if it could be increased and regulated.

I will now pass to the Bull river dam. One of the ways of increasing the supply to Mica creek is by diverting the Kootenay. As members know, the Kootenay river flows past the source of the Columbia at approximately the same elevation, and therefore a diversion is a relatively simple matter. I will primarily discuss the major kind of diversion, rather than the compromise one known as the Copper creek diversion, against the non-diversion plan. There is a lot of interaction here if the United States wants to build Libby. Libby is also a fairly large reservoir with a capacity of five million acre feet and it also needs supply. Therefore, if the Canadians should happen to divert the Kootenay river, then Libby could not be built because its supply would be limited and it could not be justified economically on that

basis. So we have the element of conflict between maximizing output at Mica creek and maximizing output at Libby.

The Canadian plans for diverting the Kootenay took several forms. Diversions of various magnitudes were studied, each one a little bit larger than the other, the first one at Canal flats and the intermediate one at Copper creek involving a dam at Luxor. The difference between the Canal flats type of diversion and the Copper creek-Luxor or the Bull river-Luxor is extremely important because the Canal flats diversion is an unregulated diversion whereas both Copper creek-Luxor diversions and the Bull river-Luxor diversions are regulated. In other words, as the flows come down the Kootenay they are collected in a reservoir and fed in a relatively steady flow to Mica creek, so that this increases the supply of the Mica creek reservoir without contributing to an additional necessity of drawing it down further, and when power comes to be installed in Mica creek this becomes an important consideration.

Much has been made of the economics of the Dorr dam. I do not think that it has ever really been stated, and in deference to Mr. Olson's request I tried to emphasize in my presentation points which I do not think have been made before. The Dorr diversion dam, which has always been in the studies made by government sources to which I had access, has always been evaluated in terms of its economics, justified by the power which it will produce. I therefore think it is useful to point out that the Dorr dam per se cannot be justified economically simply on the basis of the power that it will produce. This was not the reason for including the Dorr dam in any one of these sequences. The reason lies I think in an agreement between Canada and the United States that any solution to the development of the upper Columbia which does not solve the flood problem at Bonners Ferry, Kootenay flats or Creston flats is not a solution. Therefore, the Dorr dam has been put in as a constraint because without the Dorr dam you cannot come up with a solution. Therefore, to regard the Dorr dam incrementally and judge it on its economics is exactly the same as saying that you want to build a skyscraper but the basement and foundations are expensive so let us leave them out. This is a point which I wish to emphasize.

Much of the opposition to the full diversion plan has centred on this business of the incremental economics of the Dorr dam and the studies which are based on power. The benefits based on power are rather irrelevant because it is not valid to use the incremental analysis approach unless you know in which direction you are incrementing. The local flood control problem in the Bonners Ferry and Kootenay flats imposes a constraint on this problem, and the problem itself cannot be solved without Dorr. The primary function of Dorr is to capture the flash floods of the Bull and Elk rivers, and without Dorr the flood problem in Bonners Ferry and Kootenay flats would not be solved because the Bull river and the Elk river are flashy rivers and unless you can capture that inflow, then the problem is not solved. This is why as a substitute for the Libby dam you have to include a dam at the border to capture these floods.

Now, it happens that we can build Dorr, Bull river and Luxor at less cost than Libby can be built. Assume for the moment that the full diversion plan is being studied. This extra bit of diversion which as we have said is uneconomic is assigned only the benefits for the incremental power that it will produce not only at Mica creek but at the other plants downstream in Canada. One of the things which will happen if the water is diverted is that the winter flows on Kootenay lake will be diminished, and this will take water away from the west Kootenay plant.

If that same water goes through the larger head on the main stream of the Columbia it would actually produce more power, and because it produces more power presumably any damages in connection with the Kootenay could be arranged within Canada.

The main reason for the next dam I shall discuss is to compensate the west Kootenay for a reduction in flows arising out of diversion. I refer to the Duncan lake dam. What happens in summertime is that the flows are very large and there is a tremendous amount of spill on the west Kootenay which in any event is underdeveloped in that, with the capacity installed there at present, it is not quite enough to take advantage of the average flows that exist in nature.

But you get the large part of the flow in the four months of summer. What has to be made up from the diversion is just the natural flow at the border, or at the Dorr site on the Kootenay, in the low flow months.

Now, a very large proportion of this can be made up by building storage on Duncan lake with 1.4 million acre feet. A Duncan lake dam, would serve the purpose of capturing these flows in the spring which are normally wasted, and deliver them to the west Kootenay plants in order to compensate the west Kootenay plants for the loss of water from the Kootenay. And the Duncan lake dam by itself very nearly does this, so that the Duncan lake dam is again related to what has been variously called the Canadian plan, sequence IXa, the McNaughton plan, or the full diversion plan. I myself believe that it was included in the other plans largely because it provided a little bit extra storage, although it did not have a very vital function, and I do not believe that in the treaty it has a very vital function, if you regard it as being added after Libby.

It is a more necessary element in the diversion plan for reasons within Canada than it is in a non-diversion plan having regard to large storage on the upper Kootenay at Libby.

Now, the other dam which enters into your deliberations here is the High Arrow dam. This dam is located just above the border with the United States. It has possibly 77 feet of head which could be developed in Canada. But the major benefit from this High Arrow storage accrues in the United States.

One of the arguments in favour of High Arrow is that it is necessary to re-regulate the flows and discharges from Mica creek after Mica creek has been machined, and then by some rather tortuous logic, that this Arrow lake dam should be built immediately so that it will be available to re-regulate the discharge from Mica creek when needed. If Mica creek is not machined, then of course this problem does not arise because Mica creek can be closed off virtually completely during the high flow period, and opened up during the low flow period.

In other words, Mica creek can be overregulated at site. With unregulated inflows below Mica creek, and you will get something approximating a smooth flow further downstream. But after Mica creek is machined, there is a desire to maintain the elevation at Mica creek as high as possible on average; and there is also the necessity to maintain relatively even and smooth discharge from Mica creek.

The discharge from Mica creek to meet Canadian load would be delivered so that it would be regulated by the flows at a point or centre of gravity of power in Canada on the Columbia downstream, and would generate approximately what the Canadian load requires.

This would mean that instead of overregulating with Mica, to produce smooth flows at Arrow lakes, or near the boundary the Mica creek operation would change when generation is installed there and at Downie creek and Revelstoke, so that there would be relatively smooth flow of Downie creek

and Revelstoke, and this would mean that Mica creek discharge during the high flow period would be approximately average, depending on the seasonal operation of British Columbia.

This is a conflict which we have in Canada which we have to reconcile. I think we should probably talk about this conflict between the dam functions at Mica creek and the storage functions within Canada before we look at the conflict with the United States.

From our own point of view we would want to minimize the amount by which Mica creek reservoir level fluctuates because the higher it is, then the more power we get out of it.

There is a relatively simple formula which says that the flow in cubic feet per second times the head in feet, or the distance the water drops, divided by 15 gives the power in kilowatts. Therefore the higher you get the head, the more power you are going to get out of every single cubic foot of water, because it will drop further.

Now, in order to minimize the fluctuation in Mica creek forebay, from a purely Canadian point of view, the logical thing to do is to try to regulate the inflow to Mica creek so that the smoother the flows going into Mica creek, then the less need there is to change the reservoir level.

Again this ties into the necessity of opening up storage at the top of the watershed to maintain the output from Mica creek. The supply to Mica creek in the four month period of high flows, is on the average 10.8 million acre feet; but this is just an average. It varies. If you consider it to be what the statisticians call a normal distribution, then the standard deviation of this distribution is approximately 1.8 million acre feet. This means that 68 per cent of the time the four months supply at Mica creek is within plus or minus 1.8 million of 10.85 million acre feet. So, if you can regulate the outflow above Mica creek, then there is less need to vary the elevation of Mica creek and you get more power output from it.

When we come to deal with the United States, what they want is an inflow to Grand Coulee which more or less matches their own output requirements; in other words, the water delivered to Grand Coulee in the way the United States authorities want it.

The solution which has been proposed here has been to build the High Arrow dam so that it can act as a buffer between these two conflicting objectives. This is one way of doing it; but from Canada's point of view the value of the High Arrow dam depends entirely upon the benefits which we can derive from the United States. Once this dam is built, as it would be under the treaty, then the only use which Canada can make of it is for reregulating flows to the United States.

In his testimony yesterday, I think Mr. Wadeson made a rather interesting point. He is in the situation of the downstream state with a large amount of upstream storage being operated to meet the requirements of the upstream load. In the Pend d'Oreille, Cominco is in exactly the same position as is the United States with regard to the main stem of the Columbia.

Now, what happened when the United States people built Hungry Horse was that the Waneta plant was operating—

Mr. BYRNE: Mr. Chairman, on a point of order, could Mr. Higgins give us some idea on what page of the summary he is?

Mr. HIGGINS: I am still talking about High Arrow, if I may.

Mr. BYRNE: Have you any idea to what point you have arrived in your presentation?

Mr. HIGGINS: I am still talking about High Arrow which starts at pages 14 and 15, but I have been asked to amplify points which have not been brought out in the testimony previously.

The CHAIRMAN: I did not quite understand that. It is now ten minutes to ten and I thought the purpose of this opening statement was to summarize fairly succinctly what has been in the hands of the committee, and which members of the committee have studied with some care.

Mr. GROOS: Mr. Chairman, I would like to hear the rest of this, because obviously the witness has not had an opportunity to amplify his statement in the light of the remarks made by witnesses in the last two or three days.

Mr. MACDONALD: After all, he is following the original suggestion of Mr. Leboe.

Mr. HERRIDGE: Yes. I think we are all very interested in hearing this very lucid presentation.

Mr. BYRNE: Mr. Chairman, I would just like to draw your attention to the fact that in ten minutes one hour will have transpired. My understanding of our decision was that there would be a presentation, that the committee would peruse it during the period between the time it was received and the presentation was made, and then the witness would summarize what is in the brief. Now, apparently we have reached page 14 from page 9 which is only five pages. There are 98 pages in this brief, all of which we have read. It seems to me we would get along much more rapidly if the witness were simply to read the brief. It is his brief he is presenting and not comments on former presentations.

The CHAIRMAN: I certainly do not want to cut down on questions, but it seems to me to be an impropriety on the part of any witness simply to review what he has been hearing in the last two or three days. Surely we cannot expect long comments on the extensive evidence we have had. I am not referring to you particularly, Mr. Higgins, but in principle. If you are to revert to some other subject which has been raised by some other witness, except by way of questions, surely we are likely to get nowhere.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I think anyone who has read the brief will realize that Mr. Higgins is covering much more than merely a summary of page 14.

The CHAIRMAN: Shall we leave it to the witness?

Mr. HIGGINS: Thank you, Mr. Chairman.

My summary of this brief is a random process. Some pages may take a long time and many will take no time at all.

The point which I was just attempting to make—and I was trying to quote Mr. Wadeson as an authority—is that if you have inadequate re-regulating capacity, a substitute is an interconnection agreement.

Now I am on page 16, but we take a great leap forwardly shortly. In the international Columbia river engineering board report, Murphy creek is referred to as Low Arrow. If High Arrow is developed, then Low Arrow becomes strictly a power project. If High Arrow is not developed, then Murphy creek can have up to 3.1 million acre feet of storage capacity. It could be argued, therefore, that if High Arrow is developed, then Low Arrow becomes an expensive power project because it cannot be credited with any storage benefits and, conversely, if Murphy creek is built, the High Arrow becomes a relatively expensive storage project because the 3.1 million acre feet of the capacity currently credited to High Arrow already will have been credited.

Now, I will skip over the economics of these things and return to this later, except, perhaps, to draw the attention of the members to the little summary on page 21 of the findings of the international Columbia river engineering board which appears at pages 102 and 103 of the report.

Mr. HERRIDGE: Would you read that, Mr. Higgins?

Mr. HIGGINS: These conclusions, which come straight out of that report, I have listed in my own sequence, which more or less follows the international Columbia river engineering board sequence:

1. The Dorr diversion plan produces the lowest cost incremental power—about \$36 per kilowatt less than the non-diversion plan and about \$33 less than the Copper creek diversion plan.
2. The inclusion of High Arrow slightly reduces the cost of incremental power in all plans.
3. The Copper creek diversion plan produces the most costly increment of power in the United States, and the least costly increment of power in Canada.
4. The least costly increment of power in the United States comes from the Dorr diversion plan.
5. The non-diversion plan produces the most costly increment of power in Canada.
6. Inclusion of High Arrow in any of the plans provides no net increase in the 20 year output in Canada, but increases the critical period average output by 27 megawatts.

Mr. MACDONALD: Mr. Higgins, did I understand you to say that these are not direct quotations from the conclusions in the report? Did I understand you to say that these are not direct quotations but your own?

Mr. HIGGINS: I said the order in which the conclusions appear may not reflect the order in which they appeared in the I.C.R.E.B. report but, I believe, the quotations are correct.

Mr. MACDONALD: They are verbatim, are they?

Mr. HIGGINS: I believe so. I continue:

6. Inclusion of High Arrow in any of the plans provides no net increase in the 20 year output in Canada, but increases the critical period average output by 27 megawatts. In the United States, however, High Arrow adds about 164 megawatts to the critical period average output and 196 megawatts to the 20 year average output. The net result of including High Arrow is that until costs of incremental power output are increased in Canada and decreased in the United States.

In respect of this I would like to refer you to page 99 of the blue book. One of the useful things about the I.C.R.E.B. report is that the only difference between the A sequences and the sequences which do not have the designation A is that High Arrow is in the ones which are described in VII, VIII and IX and is out of VIIa, VIIa and IXa.

The I.C.R.E.B. assumes that the system is fully developed with all the storage assumed to be added at the same time; in other words, High Arrow does not have a first added position as it does under the treaty, but the 20 year output is 164 megawatts from High Arrow.

I invite your attention to the energy entitlement at page 99. If you look at the energy entitlement under the high load forecast and the energy entitlement under the low load forecast for the years 2002 to 2003 you will see 141 megawatts and 163 megawatts. I would like to pose a question for the committee to consider in its deliberations, the question being just how these two estimates can be reconciled, namely the I.C.R.E.B. with Arrow added, not first added, but simultaneously, when all the other storages increase the average period output by 164 megawatts, and yet the total energy benefits from Arrow to Canada

are 141 and 163 under this low entitlement. Now, this is not quite as damaging as it might seem at first look because the entitlement on page 99 is half of the total benefits, so the comparison would be between 82 and 141. But, it strikes me that of these total 282 megawatts 164 megawatts in the year 2002-63 appear to come from High Arrow, and it just makes me wonder where the rest of it comes from because we are committing twice as much storage as that.

The next question which I think is important here is the matter of diversions. The importance of diversions from Canada's point of view, I think, lies in the question we have to ask ourselves, namely will we, in fact, be able to divert under the treaty? I believe that this is one of the serious criticisms of the treaty in this particular passage. I believe I have quoted Mr. Macdonald as having said that the law in the Columbia river treaty has been set aside—that is, the law which is presently recognized in the Boundary Waters Treaty of 1909. I think the essential point here is not whether we will divert or not divert. But, the point is whether in fact, we will be able to divert, should we want to. In this respect I believe that the Waneta order and other actions by the United States are very relevant.

In the Waneta order and in the Waterton-Belly case the Americans have asserted their right, recognized in the Boundary Waters Treaty of 1909 to control the upstream flows. I believe they have done this for two reasons: one, to maintain their legal position and, two, to serve notice on us that we are building works downstream and creating a vested interest in full knowledge that the flows may be deprived from us, as the United States has the right to do. These are the two elements. I believe that one of the things that the Columbia river treaty does which is contrary to the practice which the United States has pursued in the past in respect of Canada is that it gives the United States tacit—or, perhaps I should say explicit—permission to create a vested interest on the Kootenay and, so long as the treaty remains in force, Canada does have the legal right to make certain diversions of the Kootenay at various periods, with this right expiring 100 years hence. Presumably under Article XVIII (2) we can do this. This is one of the exculpatory provisions of the treaty. We have a legal right to do this and we are not liable for damage claims. However, if the treaty should happen to terminate at the end of 60 years before we make the first major diversion of the Kootenay there may be some doubt whether an action for damages under the Boundaries Waters Treaty could be made.

Perhaps I may summarize what is stated from page 32 forward. Canada and the United States I think have agreed on a minimum criterion that any development of the Columbia river must satisfy. From the United States point of view this criterion is to the effect that there must be enough storage to give the United States flood protection under 1894 conditions to a maximum flow of 800,000 cubic feet per second at the dalles.

The other constraint from the point of view of the United States, with which I think we agree, is that there must be flood protection provided in the Bonners Ferry area of Idaho and the Kootenay-Creston flats areas.

To achieve the first objective, this primary flood control for the lower Columbia basin, a total of upstream storage of the order of 6.5 million acre feet is required. This is allowing for effectiveness factors, and the amount of storage which is fully effective for that purpose must be about 5.33 million acre feet.

To provide local flood control the waters of not only the Kootenay but the Bull and Elk rivers in East Kootenay must be controlled. This can be done in one of two ways. It can be done by building dams at Bull river and Dorr, or by building a dam at Libby, Montana. These I believe are the minimum agreed objectives.

Beyond this the United States I believe would like to get as much storage as possible in Canada and as close to the border as possible. The Canadian objective in the beginning was primarily to maintain its flexibility and freedom to develop and operate its Columbia river as it may see fit during changing circumstances from time to time. I would say this is a fundamental objective.

A secondary objective from the Canadian point of view, and this is an objective which was entertained during treaty negotiations, is to maximize the amount of energy in the form of downstream benefits which would be returned from the United States. Later this objective changed. It changed between the negotiation of the treaty and the negotiation of the protocol. The secondary Canadian objective shifted from maximizing the return of power to Canada presumably to maximizing the dollar profit from the transaction. In other words, there was an attempt to get the maximum amount of money over our expenses that was possible with a minimum objective in respect of paying for the storage. I believe the secondary objectives are to some extent in conflict with what I call the fundamental objective. I think this is one of the things that may have led to a considerable amount of confusion.

There is another long section here summarizing the treaty which perhaps I will pass. I think what I have done up to now is spend a fairly long period on relatively few pages, but in response to Mr. Byrne's comment, this is a random process, and I find in the course of these remarks which amplify what I said on page 14 I have covered a great deal of the remainder of the presentation.

I might add that I have made a recommendation in respect of flood control dealing with the language in protocol 1. It would require a fairly lengthy period to explain this, Mr. Chairman, and perhaps I can do that in response to a question.

I should perhaps state also that I have rewritten page 80 and distributed copies of the corrected version to some of the members. The data on pages 82, 83 and 84 result from the use of shortcut methods owing to my attempt to get this brief in the hands of members early enough that they could read it before my appearance.

I stand substantially behind what is stated there in terms of principles and magnitudes, but I have had an opportunity in the past week of carrying out a slightly more detailed analysis and I would be happy to present that if the question arises.

Mr. CHATTERTON: Mr. Chairman, some of us do not have the corrected copies of page 80.

Mr. HIGGINS: There are some copies on the table although I do not believe I have a sufficient number for all of the members, Mr. Chairman.

At this point, Mr. Chairman, I think I have covered most of the essential matters which I have attempted to deal with in this brief in a general way and I would now like to read into the record just the conclusions which appear on page 89:

The provisions of the Columbia river treaty of 1961 and protocol of 1964 are so interwoven that it is doubtful if they could be amended to produce a treaty which would protect Canada's legitimate interests and meet urgent requirements in the United States.

Other arrangements could be made quickly involving the building of Mica creek dam, Dorr dam and the Bull river dam (for ultimate incorporation in the Bull river—Luxor reservoir).

The treaty arrangements contain grave legal, economic and political defects.

In the interests of friendly relations with the United States in the long run, and the safeguarding of irreplaceable Canadian assets for future

generations, I respectfully recommend that the standing committee on external affairs recommend to the House of Commons that the Columbia river treaty and protocol be rejected.

The CHAIRMAN: Thank you Mr. Higgins.

I have names of three members on my list for questioning the witness: Mr. Davis, Mr. Stewart and Mr. Leboe.

Mr. DAVIS: Mr. Higgins, I would like to address a few short questions to you, and my first question is in regard to your experience and training. Are you an engineer?

Mr. HIGGINS: I am not an engineer.

Mr. DAVIS: Are you a lawyer?

Mr. HIGGINS: I am not a lawyer.

Mr. DAVIS: Are you an economist?

Mr. HIGGINS: I am an economist.

Mr. HERRIDGE: Have you had any legal experience and/or training?

Mr. HIGGINS: I studied international law under Professor Lauterpacht.

Mr. DAVIS: I will concentrate my questions primarily on the economic area.

Would it be correct to say that the plan which you back for the development of the upper Columbia in Canada might be characterized as the maximum diversion of the Kootenay plan, a plan involving the construction also of the Dorr project?

Mr. HIGGINS: Yes.

Mr. DAVIS: The Dorr diversion?

Mr. HIGGINS: Yes, that is correct.

Mr. DAVIS: The maximum diversion? This would place the main burden, if not the entire burden, of providing storage in the upper Columbia on Canada?

Mr. HIGGINS: That is right.

Mr. DAVIS: The capital costs, then, would be higher than presently contemplated by the treaty?

Mr. HIGGINS: You mean the capital costs of the entire development?

Mr. DAVIS: I mean in Canada. I am referring to the capital costs in Canada and saying that they would be higher.

Mr. HIGGINS: I would say for elements which are considered as part of the treaty, excluding elements which can be developed entirely at the option of Canada, the comparison in these 1973 dollars is in the order of, for the treaty, \$477.7 million and, for the alternative plan, \$456.2 million.

Mr. DAVIS: You are saying that if Canada also performs the function which Libby performs under the treaty, the storage which Canada would then build would be cheaper than under the treaty plan?

Mr. HIGGINS: It depends on what you mean by cheaper. The total storage would cost less.

Mr. DAVIS: We would presumably be performing more of a storage function?

Mr. HIGGINS: Yes. There would be no Libby and therefore we would be performing the entire storage function.

Mr. DAVIS: So the capital outlays must be higher?

Mr. HIGGINS: I think this does not necessarily follow because Libby is an extremely expensive project. The figures that I have quoted are of the same order of magnitude; and the reason they are of the same order of magnitude is that the Libby dam is so expensive. You see, we can meet the constraint of

the problem by spending more or less the same amount of money, largely because Libby is so expensive.

I think this is one of the things that comes out in the conclusions of the I.C.R.E.B. Why does the international Columbia river engineering board say that the Dorr diversion plan provides the least costly increment of power in the United States? The answer is that Libby is so expensive.

Mr. DAVIS: What capital cost figures are you using for Dorr-Bull river-Luxor—the total?

Mr. HIGGINS: In the alternative plan I have left Luxor as an optional investment for Canada to make. The figures which I have used for the capital costs of the projects have been \$41 million for Dorr; this is the current cost on completion. In these 1973 dollars it comes out at 49.8 because time is a factor. This figure is based on the I.C.R.E.B. report. It includes flowage, however, at \$14 million. It excludes the pumphouse but includes local generation at \$2 million for which I have given no credit.

For the Bull river portion of the Bull river-Luxor project I have assigned a cost of \$90 million.

Mr. DAVIS: You have a figure of \$90 million plus \$49 million in total?

Mr. HIGGINS: No, \$90 million plus \$41 million.

Mr. DAVIS: That is \$131 million?

Mr. HIGGINS: That is correct.

Mr. DAVIS: Are you aware that the latest estimates, the ones used by Montreal Engineering, took this figure to well over \$200 million?

Mr. HIGGINS: If I may correct you, Mr. Davis, the figures in the Montreal Engineering report which compare with mine are actually \$140.6 million.

Mr. DAVIS: And you have taken into account the fact that they have left out Duncan lake from their comparison?

Mr. HIGGINS: I left out Duncan lake too. I am just talking about the Dorr and Bull river projects.

Mr. DAVIS: You are not including the total diversion development?

Mr. HIGGINS: Pardon?

Mr. DAVIS: You are excluding some parts of the total diversion development?

Mr. HIGGINS: I have taken more or less the same approach as that taken by the Montreal Engineering Company. The costs which I have assumed here differed from theirs by \$10 million.

Mr. DAVIS: Therefore you would contest the suggestion that I made that the capital costs in Canada would in fact be higher?

Mr. HIGGINS: Shall we say that I would not agree with it? It is higher than what?

Mr. DAVIS: Higher than the so-called treaty alternative.

Mr. HIGGINS: I would say that they are of the same order of magnitude.

Mr. DAVIS: Would you finance part or all of your total diversion development with the assistance of sales in the United States, namely with lower interest rates available through sales of downstream power in the United States?

Mr. HIGGINS: Yes, I would. I would do this, and moreover if analysis shows a surplus I would think that the best way to spend this surplus would be to shorten the period of commitment to the United States.

Mr. DAVIS: But you would in effect try to take advantage of the lower interest rates?

Mr. HIGGINS: Yes.

Mr. DAVIS: In other words, you would claim at least that the capital charges, which are the principal element of cost here, would be comparable with the total diversion plan and the treaty?

Mr. HIGGINS: With the total diversion plan and the treaty? Yes, in so far as those obligatory expenses are concerned, they are of the same order of cost.

Mr. DAVIS: Then you basically disagree with the conclusions of Montreal Engineering?

Mr. HIGGINS: I do.

Mr. DAVIS: To the effect that there is a 15 to 20 per cent differential here in cost?

Mr. HIGGINS: Yes, I do. I note that the Montreal Engineering Company has set up an alternative plan which does not appear to meet the basic agreed objectives of the so-called constraints on the problem. The Montreal Engineering Company's version of the alternative does not solve the problem until much later on.

Mr. DAVIS: What problem?

Mr. HIGGINS: The problem of the east Kootenay storage. I believe we can see the sequence in the Montreal Engineering report in one of the appendices. You see, Montreal Engineering puts in the Dorr plan in 1988. If there is no flood control on the river to solve this east Kootenay-Bonnars Ferry problem until 1988, I would say that the problem is not solved. I would say, therefore, that the Montreal Engineering Company's version of the alternative is not the alternative that anybody else is talking about.

Mr. DAVIS: Would you agree that Montreal Engineering has had access to more information than you have in making comparisons?

Mr. HIGGINS: Certainly I would say that, but the question at issue is not whether they have had access to more information than I have but whether they have made adequate use of it. I am not disputing the fact that they are better informed than I am. I am disputing the way this information was used. If there is a dispute between a treaty plan of development and some sort of alternative plan, I do not see why Montreal Engineering went ahead and did all this work creating this alternative which would not satisfy the critics of the treaty as an alternative. Is this a valid point or not?

Mr. DAVIS: As I recall the evidence which Montreal Engineering gave, they analysed the treaty plan and then they explored diversions; and after careful analysis of various diversions they selected a diversion of the upper Kootenay waters which, according to the results of this study, was the best one, the optimum one.

Mr. HIGGINS: But the optimum from what point of view? This is the question. An optimum solution? I could say that no development at all is an optimum solution because it costs nothing, but it does not solve any problems either.

Mr. DAVIS: You are an economist and they chose it from an economic point of view, an optimum economic point of view, and they arrived at the conclusion that the treaty plan was the most economic alternative.

Mr. HIGGINS: If I may take issue, I would say that they have concluded that the treaty plan, given the assumptions which they have made—which I dispute—is better than the alternative which they have thought up, which I maintain does not solve the problem. This is rather like having access to a Rolls Royce up in the wilds of British Columbia where there are no roads; it does not help matters much.

Mr. DAVIS: Mr. Higgins, you place a good deal of faith in the report of 1959 of the international Columbia river engineering board. A good part of your reasoning is based on that. Is that not so?

Mr. HIGGINS: The international Columbia river engineering board is a very useful source of facts and a lot of detailed analysis has been done in the international Columbia river engineering board report, and certainly I believe everybody has relied on this for facts. I believe it is necessary to have facts which are agreed before one can really have a valid difference of opinion on those facts.

Mr. DAVIS: You would agree, therefore, that it is a useful reference in terms of major alternatives?

Mr. HIGGINS: I think it should be borne in mind that the international Columbia river engineering board's terms of reference instructed them to proceed as though the boundary did not exist. Therefore, as has been stated several times in the presentation and elsewhere, the international Columbia river engineering board report, is a useful source of facts, and to some extent it does reflect the competitive engineering approach to this problem. I think you need to bear in mind the assumptions underlying this.

Mr. DAVIS: It did not study a simple diversion at Canal Flats as one of the alternatives; is that right?

Mr. HIGGINS: No, I do not believe it did.

Mr. DAVIS: The contention that that may be the most economic is neither borne out nor disputed in this engineering report?

Mr. HIGGINS: That is right.

Mr. DAVIS: I would like to draw attention to your page 21. At the bottom of that page you reiterate some of the statements which appear in this report. I think the conclusions which this report reaches are important, namely the 1959 report of the international Columbia river engineering board. You say at the beginning of the third paragraph:

Conclusions of the international Columbia river engineering board stated on pages 102-103 of their report bear repeating—

And so on. The conclusions actually appear much later in the report; they appear at the end.

Mr. HIGGINS: Yes.

Mr. DAVIS: They appear on page 109 of that engineering board report. I think I might just read in the relevant paragraph from those conclusions as reached by the Canadian and United States engineers:

Three possible methods of developing the Kootenay and upper Columbia rivers produced potential benefits nearly equal in terms of total effect in the basin. The results of the power studies indicated that on the basis system power production and under the given assumptions—

That would include no boundary.

—The Copper creek diversion plan—

And the Copper creek diversion in your view is a partial diversion.

—would provide the highest level of development of the water resources of the basin. However, the apparent superiority of this plan takes into account only physical and economic factors and the margin on which this superiority rests is small.

In view of these factors, and having regard to the practical limits of the accuracy of the studies, no one plan of development can be selected as representing the optimum use of sites and water resources.

The conclusion of those engineers really was, after looking at the alternatives of letting the waters remain in their present channels or letting the Kootenay run, a substantial diversion of the Kootenay and a moderate diversion of the Kootenay, that they saw no substantial difference between the economic advantage for one plan as against another.

Mr. HIGGINS: It may be significant to note what they said in their passage which you read out. It is that the Copper creek diversion produces the highest development in the basin. This I would say is a statement of physical but not necessarily of economic fact. I believe this is a very cautious conclusion. They say that the Copper creek diversion produces what is tantamount to the largest amount of physical development in the basin.

It is perhaps significant that they made no particular reference to the cost, because you see on page 102 they say that:

The Copper creek diversion plan produces the most costly increment of power in the United States, and the least costly increment of power in Canada.

I believe the reason for this is that costs are high in the United States, and the cost of Libby is an expensive project.

Mr. DAVIS: But they say that this part of the diversion produces the cheapest power in Canada. And if you look at the statistics on page 102 you will see they say that the power diversion which you advocate is more expensive in Canada.

Mr. HIGGINS: That is true, but I do not think anybody has ever disputed that the Dorr plan, before us, costed on an incremental basis, credited to it only power benefits, is not an efficient economic machine. But this is exactly what Elmer Bennett said about Libby.

I would say that the difference here is that the Dorr at a cost of somewhere in the area of \$40,000,000 to \$45,000,000 credited, is not economic from the point of view of power, but it is a necessary thing in order to solve the flow control problem in the Bonner's Ferry area without building Libby.

That is the only reason why the Dorr dam was included in there. The Dorr dam was never included in sequence IXa for the purpose of being a power producer. It was included in there because you just could not solve the agreed portion of the problem without putting a dam there.

Mr. DAVIS: You would agree that the Dorr scheme is less economic than some alternatives as far as Canada is concerned.

Mr. HIGGINS: No. If you expanded to the Dorr scheme, I would dispute you, and I would say that the Dorr dam, per se, has to be incorporated in the maximum diversion plan in order to solve the flood control problem in the United States, and that is the only reason. Left to our own devices, if there were no flood control problem, in the Bonner's Ferry area of the United States, Canada would not have included Dorr in the scheme.

Mr. DAVIS: You cannot use the I.C.R.E.B. report as proof of your case because it does not say that the Dorr scheme is the best for Canada.

Mr. HIGGINS: That is true. But I do say, as I have said before, that the I.C.R.E.B. conclusions are quite cautious. Now, I would say on my own authority, upon the analysis I have made, that if this flood control problem which we have agreed with the United States must be alleviated, did not exist, then there would not be any Dorr. As a power producer surely Dorr is not economic. But that is not the reason it was put in there. It was put in there because the basic problem could not be solved without it; and the kind of thinking you can apply to Dorr applies to Libby in equal measure, but Libby costs many millions more than Dorr does.

The Dorr cost is somewhere in the order of \$45,000,000, while Libby, including the flowage cost, is about \$350,000,000, as a general figure.

Mr. DAVIS: The conflict I have in my mind is that there are better schemes than the Dorr scheme as far as Canada is concerned, and moreover the report distinctly states that the least costly increment of power in the United States derives from the Dorr scheme.

Mr. HIGGINS: That is probably true because they did not have to build Libby.

Mr. DAVIS: So we can select other alternatives that are better for Canada, under the treaty arrangement?

Mr. HIGGINS: I would say that the Dorr scheme, the full diversion scheme, is, from Canada's point of view, the only one which will solve the agreed problem which is flood control in the United States, and will preserve Canadian control of the river. That is really what is at issue here.

You see, one way you can interpret these cautious proposals of the United States—pardon me, of the international Columbia river engineering board—is that the Columbia can be developed in any number of ways. And therefore, because they ignored the boundary, you must look at, perhaps, other things than just economics.

Mr. DAVIS: That is my main point. Your argument is not now economic, or largely one of economics.

Mr. HIGGINS: No.

Mr. DAVIS: It is more political and legal in a sense.

Mr. HIGGINS: I think that all that needs to be shown is that within the terms, if Canada can build and finance the Dorr scheme right now at the same cost, or with the same sort of operating results as it can build the treaty scheme, then I would say that the results indicate that it is the sensible thing. But take other grounds; suppose the answers came out identically equal, and we had to make a choice. We would choose the maximum diversion scheme simply because we did not have to give up our rights in any way, shape or form, or restrict them so far as diversion is concerned, and that is one of the things we must do in order to permit Libby to be built.

Mr. DAVIS: Montreal Engineering has stated that the detailed cost would show the maximum diversion to be appreciably more expensive.

Mr. HIGGINS: I have interpreted that question here as "more expensive than what"? Is it more expensive than an alternative which does not solve the problem?

Mr. DAVIS: It is a political problem.

Mr. HIGGINS: No, it is an economic problem or a physical problem, and it does not resolve the flood problem until 1988, and I submit that is too late.

Mr. DAVIS: I do not follow you, because the alternative is the treaty plan which does resolve the probable flood problem.

Mr. HIGGINS: Building Dorr earlier? All right, that resolves the flood problem.

Mr. LEBOE: We are talking about one diversion, and we are talking about protecting the rights of Canada in respect of diversion. Is that not the statement you made a moment ago? Are we not overlooking the fact that we have a similar problem in the Pend d'Oreille river here and on some of the rivers in the province of Alberta? Is that not a fact?

Mr. HIGGINS: I think the problem of the Pend d'Oreille is different because, to my knowledge, there is no flood problem on the Pend d'Oreille except for those two acres.

Mr. LEBOE: I mean in the legal sense; in the economic sense if the United States did want to divert the Pend d'Oreille river wholly within the United States as a result of putting in a dam, and if they sought to do that, they could do it if it was not for the treaty.

Mr. HIGGINS: That is correct.

Mr. CHATTERTON: You said that the alternative which Montreal Engineering developed does not solve the problem at Bonner's Ferry, and you said that the annual cost of flood at Bonner's was something like \$800,000 a year. But Montreal Engineering debited their alternative plan with the annual cost up to 1988.

Mr. HIGGINS: Yes, I know, but that does not solve the problem. This is just a case of putting a charge against the alternative plan. The problem here is not to do an accounting exercise. The problem here is to prevent these people in the Bonner's Ferry and Creston flats area from being flooded annually as soon as possible. I believe that is the real issue.

Now, I do not believe it is any solution or any comfort to the people in the Bonners Ferry area to know that Montreal Engineering Company has taken the \$815,000 damage, which they do, and has made it a charge against the alternative plan.

Mr. CHATTERTON: Would that not be a sensible way of comparing the two?

Mr. HIGGINS: No. The way is to have your alternative boards meet the fundamental problem and solve it, preferably at the same time.

Mr. MACDONALD: Surely the people in Bonners Ferry will be most delighted to know they are getting a dam at Libby which will protect them. If, as you say, you are not interested in accounting of costs, then leave that aside: from the standpoint of their protection, this is the best way to have it.

Mr. HIGGINS: This is the best they can have from their standpoint, yes. Whether they are protected from floods by a United States dam or are protected from floods by dams in Canada, frankly I doubt whether this is of very much concern to the people there.

The CHAIRMAN: Gentlemen, we have a gentleman who I think has been kind enough to qualify himself as an economist. He was very frank in indicating he is not an engineer, and even went so far as to dissociate himself from politicians.

Mr. CHATTERTON: The witness never hesitated to give a reply. If he felt incompetent to reply, he should have said so.

The CHAIRMAN: I have been reading some of the proceedings of our earlier hearings, and I have been concerned over the extent that some of our supplementaries have wandered away from what appeared to be fairly clear problems. I do not want to cut short anybody on questions, but I wish it would not be through the medium of supplementary questions.

Mr. DAVIS: I have one more question in respect of page 21 of your brief. I am still on the conclusions of the Columbia river engineering board, the last of the six conclusions. At the end a sentence is included which Mr Higgins underlined:

The net results of including High Arrow is that unit costs of incremental power outputs are increased in Canada and decreased in the United States.

Now, you already said that this study paid no heed to the border.

Mr. HIGGINS: That is right.

Mr. DAVIS: Hence the inclusion of the 50-50 concept of the division of the downstream benefits radically alters this conclusion.

The CHAIRMAN: Excuse me. If the witness agrees it would be helpful would he say yes? He has been nodding his head.

Mr. DAVIS: In other words, those conclusions which were carried out by this international board, without regard to political facts of life, do not necessarily have any bearing on the conclusions which this committee might reach, and indeed they tend to mislead.

Mr. HIGGINS: Yes. Well, this is a reflection of the fact that the High Arrow dam does not produce significant benefits in Canada per se.

Mr. DAVIS: It does not regulate water passing over much territory.

Mr. HIGGINS: Yes; it just regulates water passing over the Murphy creek dam. However, I think it is significant that any merit which High Arrow may have for the United States entirely depends upon some agreement with the United States for the return of the benefit deriving in that country from High Arrow. I think this is significant because this is one way of solving a problem; there may be other ways.

I think a very significant question which the committee needs to ask itself is, is the flooding of the Arrow valley the only way to solve this problem?

Mr. BYRNE: The other way is to flood more of the east Kootenay than High Arrow.

Mr. HIGGINS: If I may pursue that logic to its ultimate conclusion, perhaps the best solution is not to flood anywhere. This is an argument for rejecting the treaty.

Mr. BYRNE: That may well be, but we are picking one.

Mr. DAVIS: To conclude my questioning, in fact the High Arrow creates benefits, small in Canada and larger in the United States; but as a result of the treaty, there is a credit of a physical amount of production in the United States of hundreds of thousands of kilowatts with which High Arrow is credited. So far as entitlement is concerned, this is as good as if it were produced in Canada.

Mr. HIGGINS: As a result of the treaty and protocol there is a claim of a certain number of dollars from the United States plus a residual claim on an unknown amount of power 30 years hence.

Mr. DAVIS: Then there is a claim on kilowatt hours and dollars in lieu of same.

Mr. HIGGINS: There is a claim on dollars which I calculated on the basis of 2.7 mills per kilowatt hour U.S. and \$5.50 U.S. per kilowatt of capacity for our share of these benefits, as stated on page 99 of the blue book. I would say there is very little difference. They may compare favourably with the costs of electrical output from a publicly financed modern large capacity thermal plant.

Mr. DAVIS: I just want to reiterate this sentence:

The net result of including High Arrow is that unit costs of incremental power outputs are increased in Canada and decreased in the United States.

Mr. HIGGINS: Yes.

Mr. DAVIS: It is not proved that this will be so, assuming a treaty.

Mr. HIGGINS: What it says is that if High Arrow is going to be built, the costs accrue in Canada and the benefits accrue in the United States.

Mr. DAVIS: It is merely a statement of the physical fact, and is not really a relevant judgment in respect of whether the treaty is good or not.

Mr. HIGGINS: No; this is not stated as a ground for condemning any method of development. It is just simply a useful fact which I think has a bearing.

Mr. DAVIS: From the physical point of view.

Mr. HIGGINS: From the physical point of view and from the financial point of view, and the physical fact dictates all else.

Mr. KINDT: Mr. Chairman, may we adjourn to meet again?

The CHAIRMAN: May I ask members to please endeavour to be here promptly at four o'clock, because that gives us only two hours to question Mr. Higgins.

AFTERNOON SITTING

WEDNESDAY, April 29, 1964

The CHAIRMAN: Gentlemen, I see a quorum. In accordance with past custom I would like to report the following correspondence having been received since our last meeting.

We have correspondence from Mr. F. Tomkinson, Vancouver, British Columbia.

Mr. HERRIDGE: That is a good idea.

The CHAIRMAN: Yes. This is his fourth letter to me. This one comes on a letterhead from Chicago. I get one of these almost every day.

Mr. PATTERSON: He gets around.

The CHAIRMAN: Then, we have correspondence from E. W. Williams of Burton, British Columbia.

Mr. HERRIDGE: Another good chap.

The CHAIRMAN: And, from Mr. John Stanton, Vancouver, British Columbia.

Mr. HERRIDGE: Yes. Mr. Stanton is very much opposed to the treaty.

The CHAIRMAN: Then we have a reply from earlier communications by Mr. R. Deane of Rossland, British Columbia, in connection with his expenses.

Mr. Stewart, you have the first question.

Mr. STEWART: Mr. Chairman, I have two or three questions I would like to put to Mr. Higgins.

Mr. Higgins, is it true that earlier this year you wrote articles which you had published in the *Globe and Mail* and in the information publication of United Steel Workers?

Mr. HIGGINS: Yes, that is true.

Mr. STEWART: And, is it not true in those articles you argue that the Canadian negotiating team was politically oriented, which is a quoted term, and then you say: "none of these men possessed any particular qualifications for this task that could be compared to those of their opposite number on the U.S. team".

Mr. HIGGINS: That sounds familiar.

Mr. STEWART: And, that is still your view in respect of the principal negotiators?

Mr. HIGGINS: That is my view, yes.

Mr. STEWART: When you distinguish between principal negotiators and other negotiators whom do you have in mind among the principal negotiators?

Mr. HIGGINS: I distinguish between the people who signed the negotiators' report and their advisers.

Mr. STEWART: Are you implying the principal negotiators signed this report over the objections of their advisers?

Mr. HIGGINS: No sir.

Mr. STEWART: Are you then suggesting to me that the advisers agreed with the principal negotiators?

Mr. HIGGINS: I make no suggestions at all in this respect. The point which I made had particular reference, I believe, to the fact that the best qualified person in the United States with respect to the Columbia river treaty was General Itschner of the United States army corps of engineers and the best qualified person in Canada in respect of matters of the Columbia is, I think, widely acknowledged to be General McNaughton.

The purpose of this statement was to point out that General Itschner was one of the principal United States negotiators and General McNaughton was not one of the principal Canadian negotiators.

Mr. STEWART: Then, you would not agree with me that the following expression is somewhat extravagant: "none of these men possessed any particular qualifications for this task that could be compared to those of their opposite numbers on the U.S. team".

Mr. HIGGINS: I would not concede that.

Mr. STEWART: Well, I do not wish to pursue the point any further; let us leave it at that.

The next question I wanted to put is in respect of the Libby project. On page 73 of your brief you have two quotations. The first deals with the operation of Canadian storage and suggests the need of an agreed shared plan of operation. The second and third deal with Libby, where there is no such assured plan. Would you not say it would have been fair in your brief to have pointed out that in the case of the first quotation the United States is sharing with Canada one half of the downstream benefits, whereas in the case of the project referred to in the second and third of your quotations there is no such provision. Is there not this basic difference?

Mr. HIGGINS: In answer to your question about the downstream benefits from Libby, the flows from Libby pass through the at site head, possibly through the Kootenay falls development downstream from Libby, if this should be built; they pass through 350 odd feet of head at the west Kootenay plants; if Murphy creek is built they will pass through some head there, and once they re-cross the border they go through some 1,200 feet of head in the United States. Therefore, the total downstream benefits from the Libby dam are the downstream benefits from the 1,200 feet of head on the main stem of the Columbia, the at site head, the Kootenay falls head, and there is a remote possibility of the Katka head except for the fact the international Columbia engineering board found this project program uneconomic. And, in Canada it goes through possibly a little over 400 feet of head. I would say what the treaty says is that the benefits from Libby are divided in such a way that they accrue to the country in which they arise.

Mr. STEWART: Well, Mr. Chairman, may I ask Mr. Higgins this question.

Is it not true that in the case of Libby the costs of construction with the exception of flowage costs in the upper end of the reservoir are being paid by the United States entirely?

Mr. HIGGINS: This is a correct statement but it has a bearing on my other statement. The contrast in respect of these benefits from Libby is that they go through something in excess of 1,200 feet of head in the United States and something in the order of 400 feet in Canada. Through the 1,200 feet in the United States, providing an assured plan of operation is provided; the west Kootenay, and the Canadian plants do not have an assured operation. You heard what Mr. Wadeson said yesterday. If I could quote him, he said that to get the firm power which is claimed as a benefit we must rely on a interconnection

with someone. Now, this is either the United States or British Columbia hydro. But, the benefits to Canada from Libby per se depend upon another agreement which may or may not be suitable to the other party.

Mr. STEWART: Well, is it not true that the witnesses here yesterday, who are the private persons principally concerned, are entirely happy to depend on the available agreement?

Mr. HIGGINS: I would suggest, considering the entire situation in British Columbia, they have little alternative.

Mr. STEWART: Nevertheless, they seem to be quite agreeable.

Mr. BYRNE: Mr. Chairman, on a point of order—

Mr. LEOE: Would the witness like to explain what he means by that last statement. I think it is only fair that we should have an explanation of it on the record.

Mr. BYRNE: Mr. Chairman, on a point of order, I think I am as familiar with what Mr. Wadeson had to say as anyone else and I cannot recall Mr. Wadeson saying that the flows from the Libby for proper regulation of their production would require a subsequent agreement. This was not said at any time. He said he could operate under the existing agreement.

The CHAIRMAN: Gentlemen, I would ask that we avoid supplementaries as much as possible.

Mr. BYRNE: This is not a supplementary; it is a correction.

The CHAIRMAN: Criticism has been directed to the effect that we tend to wander off the subject. I would ask that we stay strictly to the question.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I would suggest it might help matters if the witness was allowed to finish his answer before another question is thrown at him.

Mr. STEWART: Mr. Chairman, we have been over the schedule of the various projects in his committee so many times that I think certain things should be limited. However, I realize the witness perhaps has not been here throughout and does not realize this. But, it is a fact we do know something of the projects. I suspect Mr. Cameron knows something of the projects.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Not a thing; no more than you.

Mr. STEWART: There is a good deal of work to be done and I think we should proceed in an expeditious way.

I refer you now to page 20.

Mr. LEOE: If I may interrupt, there was a statement by the witness in respect of the British Columbia and West Kootenay Power and Light which I do not think should be on the record without some explanation as to what he meant.

The CHAIRMAN: Mr. Higgins, perhaps you were cut short. Would you proceed with your comments in that connection?

Mr. LEOE: I am referring to an answer to a question of Mr. Stewart's.

Mr. HIGGINS: West Kootenay and Cominco have a great deal of experience on the Pend d'Oreille with this type of operation and they have been able to achieve a very high degree of operating flexibility by virtue of having an interconnection agreement.

Mr. LEOE: This is something which will take place in the future?

Mr. HIGGINS: The significant thing here is that Cominco went to Bonneville power for its interconnection agreement. I think this has a bearing on this matter.

The other fact which I think probably represents a justifiable worry on the part of Cominco is that they have a fairly sound basis of confidence that

if the treaty scheme goes through they will in fact be able to make arrangements which enable them to exploit this 200 megawatts of Kootenay power.

Mr. LEBOE: Is that what you meant when you said they had no alternative?

Mr. HIGGINS: The alternative which faces them in respect of a diversion scheme regarding the expansion of the Kootenay river plants is presumably some sort of arrangement made to compensate Cominco for any loss it might incur. I believe that Cominco, per se, without the diversion would not be able to develop the Canal plant and would have to make other arrangements to acquire the output instead of that plant as operated within the national framework of the treaty from the point of view of Cominco. It makes a certain amount of sense for Cominco to support this treaty, looking at it from their own interests.

Mr. BYRNE: Looking at it from the interests of the two communities it would make sense.

Mr. LEBOE: He states it makes sense when they look at it from their own point of view and not in the way it was put, that they had no alternative.

The CHAIRMAN: Thank you Mr. Leboe.

Mr. STEWART: At page 20 at the end of the principal paragraph we find the following sentence:

The competing structures are Dorr and Bull river-Luxor in Canada, costing about \$155 million versus Libby in the United States costing about \$350 million.

Do you regard that as an accurate statement?

Mr. HIGGINS: Those are orders of magnitude.

Mr. STEWART: When you say they are orders of magnitude, would you indicate what the tolerance is?

Mr. HIGGINS: I would indicate that the cost of the Libby project is substantially greater than the cost of the Dorr and Bull river-Luxor projects.

Mr. STEWART: Substantially is a very vague term.

Mr. HIGGINS: I would suggest it is of the order indicated by the figures \$155 million versus \$350 million.

Mr. STEWART: I have a statement here from the Montreal Engineering Company in which that company states that the costs of the East Kootenay development in Canada would be \$212,852,000 or some \$55 million more than the figure you have given in your brief.

Mr. HIGGINS: I should like to make two comments in that regard. Firstly, I find it strange that the Montreal Engineering Company would be in possession of this information and omit it from the brief.

Mr. STEWART: Mr. Chairman, I am quite prepared to table the information.

The CHAIRMAN: All right. Is that agreeable?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Perhaps we should allow the witness to finish.

Mr. STEWART: The implication was that this information is somehow illicit.

Mr. DAVIS: Is this information directly deducible from the Montreal Engineering Company's brief?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This information is not taken from the brief.

Mr. STEWART: This information is contained in correspondence.

Mr. HERRIDGE: Mr. Chairman, if we allow the tabling of this material we will be setting a precedent.

Mr. DAVIS: This represents new information.

The CHAIRMAN: Yes, this is new information.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This is new information which, for some strange reason, was not given to this committee.

The CHAIRMAN: Is there any argument about this point? If this is new material I would suggest that it should not be entered into the record.

Mr. STEWART: This information is somewhat more detailed than that contained in the brief, but it is certainly based on the figures which are given in the brief.

Mr. HERRIDGE: Who wrote the letter?

Mr. STEWART: The letter is addressed to the Department of Northern Affairs and National Resources, water resources branch, Ottawa, 7, Ontario, and it is signed by W. J. Smith, chief civil engineer, Montreal Engineering Limited.

Mr. HERRIDGE: What is the date of the letter?

Mr. STEWART: It is dated March 4, 1964.

Mr. HERRIDGE: Mr. Chairman, I suggest that this is new material and that perhaps Mr. Stewart would just quote the short extract to which he wishes to refer, otherwise we will be setting a precedent.

The CHAIRMAN: I agree with you, Mr. Herridge.

Mr. STEWART: Mr. Chairman, I am not insisting upon this information being tabled.

Mr. DAVIS: Mr. Chairman, I think the figures are directly deducible from the brief.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I thought that was the point we were attempting to clear up.

The CHAIRMAN: Mr. Stewart has indicated that that statement is correct. Would you be kind enough to read the information?

Mr. STEWART: The figure is \$212,852,000.

Mr. HIGGINS: I can deduce a figure of something of the order of \$205,900,000 from the Montreal Engineering Company brief.

Mr. STEWART: On that same page and in that same sentence you seem to imply that the sums of money would be coming out of the same pocket, whereas the cost of the Libby project reduced by the amount of flowage cost over the Canadian border would actually come out of the pocket of the United States. I do not wish to suggest that we should advise the United States authorities how to spend their money, but is the high cost of living that you mention here as compared with the projects in east Kootenay something that should concern Canadians at a time when Canadians interest is chiefly in our minds?

Mr. HIGGINS: I do not believe so, sir, for the following reason. I do not believe that the cost of a project, per se, is relevant in an economic analysis unless you associate it with the revenues or benefits which are produced by that for which it is spent. In other words, very often it is economical to spend more money to get more benefits than it is to spend less money to get more than proportionately less benefits. I think the essential point is that if the United States has been able to find an economic justification for a project like this and some benefits will be conferred by putting the storages on the Canadian side, then if the economic aspect works out all right there must be some way of making these benefits flow to these cheaper projects.

Mr. STEWART: Is there any thought in your mind that the United States may in fact be making a mistake by proceeding with the Libby project?

Mr. HIGGINS: I have not concerned myself with an analysis of this treaty from a United States point of view. I do not consider myself competent to judge what the United States considers right or wrong.

Mr. STEWART: A little while ago you told us that in your view on the Canadian side General McNaughton is the person most likely to be respected as an authority in all these matters concerning the development of the Columbia river basin.

Mr. HIGGINS: I would extend this to say that this recognition would be I think internationally given.

Mr. STEWART: But at the moment I am only concerned with your own view.

Mr. HIGGINS: My own view is certainly that he would be respected as an international authority.

Mr. STEWART: I take it you agree entirely with the general's view as to how the Columbia river basin should be developed.

Mr. HIGGINS: Yes, substantially.

Mr. STEWART: When you say substantially are you using the term with the same amount of tolerance you used before?

Mr. HIGGINS: I am sure that if we ever got down to working out the matter in detail, we would have to have discussions. In other words, if it came to an actual building, we would have to discuss it. But as far as the situation confronting us at the present time is concerned, I would be in total agreement with him.

Mr. STEWART: So that you envisage you would certainly have a good deal to discuss with the general?

Mr. HIGGINS: This is difficult to predict.

Mr. STEWART: But you certainly would not deny this possibility.

In the Montreal Engineering report, on pages 15, 18, 19 and 30—and I direct your attention particularly to page 30—there is a comment, some of it indirect, concerning the function of the Arrow lakes reservoir. Let us read the second sentence in the middle paragraph where it says:

It is clearly demonstrated, however, that this reservoir will make it possible to operate the Mica creek storage to meet Canadian load requirements, and at the same time maintain discharges from Arrow lakes for optimum operation within the United States, and that the capacity proposed to be impounded is necessary.

Do you agree with that?

Mr. HIGGINS: I do not, sir.

Mr. STEWART: In other words, you do not envisage the inclusion of the Arrow lakes reservoir in the development of the Columbia river system?

Mr. HIGGINS: Not as an initial project certainly, and most likely not even as an ultimate project.

Mr. STEWART: In what condition would you think that this would be desirable?

Mr. HIGGINS: I have not been able to conceive of such a condition. The reason for my statement is that I think that what Montreal Engineering Company has said here overlooks an important possibility. They have said that the capacity proposed to be impounded is necessary. This is true if you just look at the hydraulic side of the business. Mind you, it is not necessary to build the Arrow lakes under any circumstances until the machines have been installed at Mica. I think one of the things the committee would be advised to look at is this word "necessary". In other words, we are faced with the possibility of flooding this valley, and I am sure that the committee would like to ascertain that it is in fact necessary to accomplish this purpose. Again, this is the reason for the importance of the statement about interconnection on the west Kootenay and on

the Pend d'Oreille. It is my contention that a substitute for the Arrow lakes storage of four million acre feet is available by building transmission lines so that the river can be operated at Mica perhaps to suit United States needs. With the interconnection agreement the output which would be lost at Mica for operating other than to meet the Canadian load could be made up by replacement energy from the United States. This is a normal interconnection agreement.

Now, it would seem to me that if we can build transmission lines in lieu of flooding a valley to the point at which the High Arrow floods the Arrow lakes valley, then we would be well advised to take advantage and look very carefully at any of these alternative plans. The Montreal Engineering Company, I notice, in its brief makes no mention of the fact that they may have studied this possibility. The treaty itself makes provision for an ultimate interconnection agreement. The standby transmission charge lapses with the start of this interconnection agreement, so it has been contemplated. The Arrow lakes storage is stated to be necessary, and yet an interconnection agreement is also stated to be necessary. I would suggest to you that somewhere in this process something has been overlooked. Is it absolutely necessary to flood out the Arrow lakes valley to a capacity of 7.1 million acre feet, and particularly to do it at this time when we are talking about its function being to re-regulate the machines at Mica which will be installed in the late 1970's? We are talking about an interconnection agreement with the United States which could very easily perform the functions of the Arrow lakes dam, and I am only talking about four million acre feet of the capacity in the Arrow lakes dam.

Mr. STEWART: You are not ruling out the prospect of building the High Arrow dam?

Mr. HIGGINS: I am disputing its necessity.

Mr. HERRIDGE: I have a supplementary question on this point.

The CHAIRMAN: There is just one point we should bear in mind. Mr. Higgins clarified the fact that he was an economist, not an engineer or a lawyer.

Mr. HERRIDGE: That is my point; my question is on those lines. Mr. Higgins, in view of your recent comment, in coming to your conclusion with respect to this treaty have you considered values other than power only?

Mr. HIGGINS: Mr. Herridge, I think that the blue paper talks quite extensively of factors not reflected in the benefit cost ratio, particularly with reference to the Libby dam. These are the bases on which the Libby dam is justified. The local flood damage of \$815,000 odd annually will only justify a structure costing from \$20 to \$25 million.

Mr. STEWART: Nevertheless, Mr. Higgins, despite the many beaches and substantial farms that Mr. Herridge has been telling us about you do conceive the possibility of building the High Arrow dam. For example, you wrote to Mr. Martin on January 18, 1964, that if the purpose is to maximize both at site generation in Canada and the economics of early construction based on downstream benefits, then it is perhaps High Arrow that should be postponed. Mr. Herridge would not take much comfort from that.

Mr. HIGGINS: This was a suggestion made to the Secretary of State for External Affairs dealing with the following point, that the purpose of High Arrow is to re-regulate the flows from Mica, after Mica has been machined and it will not be machined for many, many years.

Mr. STEWART: Mr. Herridge is still a young man.

Mr. HIGGINS: There are other young people there, I presume. There is a sort of conflict there. If the reason for High Arrow is to re-regulate these flows, why do we have to build it now, particularly when there is doubt whether we should build it at all?

Mr. STEWART: Are you proposing we should enter into a fairly complete co-ordinating agreement now so that we could get rid of the problem of re-regulation downstream from Mica?

Mr. HIGGINS: The co-ordination agreement I think is just as relevant as the building of High Arrow now. The need for the interconnection agreement would not arise until the problem came up, and the problem would not arise until machines are put in, in Mica.

Mr. STEWART: As an economist, do you think it would be a wise policy for us to proceed with the machining of Mica, knowing full well that the efficient operation of such an expensive project would depend on the existence of an agreement? You would then have to go to the United States and say, "Please, we have this enormous structure and we cannot operate it economically until you give us a complete interchange agreement". This is a bad economic situation, is it not?

Mr. HIGGINS: I disagree. The reason why Cominco for instance went to B.P.A. is that B.P.A. is the high man on the totem pole. I would suggest to you that what would happen in the circumstances is that the United States authority would come to us and ask us for an interconnection agreement.

Mr. STEWART: To help us?

Mr. HIGGINS: Not to help us but to help themselves because they would get enormous benefits from such an interconnection agreement. I think that who asks and who has had in hand have a big bearing on the outcome in a bargaining situation.

Mr. STEWART: I think this is a very speculative condition on which to enter any kind of a business negotiation.

Mr. HIGGINS: If there is no interconnection agreement we would operate Mica to suit our own load. May we look at the relative orders of magnitude involved? It has been stated that Canadian at site power in the Columbia is in order of four million kilowatts and the downstream benefits in the order of 200 megawatts.

Mr. STEWART: You are saying that Mica would be more economic with this interchange agreement—this is what you told us approximately five minutes ago. It may very well be that we could operate without this, but surely you have demonstrated conclusively that we need it.

Mr. HIGGINS: I do not believe we need it; I think the United States needs it. What we stand to gain, if it is a normal standard interconnection agreement, is to get everything we lose plus half the improvement. I see nothing wrong with this. We only stand to gain.

Mr. STEWART: The absence of such an agreement might make Mica an unsatisfactory project for us in view of our requirement to help downstream in flood protection from that Mica source.

Mr. HIGGINS: The help we need to give the United States downstream is relief from serious damages which the United States themselves have defined as requiring $6\frac{1}{2}$ million acre feet. We could produce this amount of flood control storages as a by-product of our power operations. Now this might not be produced at Mica. As a matter of fact, one of the important things of the development of the Canadian system is our ability to shift the location of this flood control storage from reservoir to reservoir as our system develops, and we need this flexibility in toto at the border. We can remove the required amount of water during the flood period.

Mr. STEWART: In other words, you begin the construction of the east Kootenay plants so that they would be ready to provide the storage when you start to operate Mica?

Mr. HIGGINS: I think the proposal which I would make is that in order to solve the problem, which is the control of flows to 800,000 cubic feet per second at the Dalles and the local flood control problem in the Bonners Ferry area, we would have to build storages in the east Kootenay. We would not have to build the entire Dorr-Bull river-Luxor complex. This end would be achieved by building the Dorr dam and the Bull river dam and operating these as storages discharging down the Kootenay with no diversion until such time as Mica is machined. We would build Mica on the main stem of the Columbia, depending upon the downstream benefits or the cash situation. With a very large storage at Mica and no machines to worry about we can with impunity draw the reservoir up and down as far as the flows will permit us.

Mr. KINDT: Which reservoir?

Mr. HIGGINS: The Mica reservoir.

Mr. KINDT: You are not talking about Arrow?

Mr. HIGGINS: No, there is no Arrow in this conversation.

Mr. STEWART: I have concluded my questions.

Mr. DAVIS: I have a supplementary question. As I understand it, there is nearly as much new water entering the main stem of the Columbia in Canada below the Mica creek reservoir as in fact enters it.

Mr. HIGGINS: That is true.

Mr. DAVIS: You would not propose to control that other half of the water arising in Canada?

Mr. HIGGINS: The important thing here is that the unregulated inflow downstream from Mica occurs at the same time of the year as the unregulated inflow at Mica. Now, you can get the same result if you cut off the flow at Mica during the flood season; in other words, you over-regulate at Mica and then this inflow will come in.

Mr. DAVIS: But this cutting off reduces your at site power production.

Mr. HIGGINS: There is no at site power; I am talking about operating Mica as a reservoir in the years before it is machined. You only need to maintain discharge from Mica when you have machines in, and when you do have machines in you need to maintain the discharge at considerably more than 3,000 cubic feet per second which is what the treaty provides.

Mr. DAVIS: My question focuses on the years after the machines are installed. Presumably, you would want to keep your level at Mica creek at the maximum, so you do not really want to use it as a variable reservoir.

Mr. HIGGINS: Only in the interim period.

Mr. DAVIS: Do you not therefore need something downstream to perform the storage function?

Mr. HIGGINS: I am suggesting that this can be done by putting 3.1 million acre feet of storage at Murphy and 4 million acre feet at Bull river-Luxor plus about 800,000 acre feet at Dorr with a regulated diversion. In other words, you move the regulation out of the Mica reservoir, you move part of it upstream and part of it downstream. If there remains any further requirement or unevenness, then I would suggest that the solution to this, as an alternative to flooding the Arrow valley, is to build transmission lines and accommodate the United States with an interconnection agreement. This is one of the arguments for having a treaty of as short a duration as possible from the power point of view.

Mr. DAVIS: You would put almost the entire burden of the water regulation at least at Mica and presumably above Bull river-Luxor and Mica, and

you would not really endeavour to control the other 50 per cent of the water that enters in streams below the Mica creek?

Mr. HIGGINS: No, I would not, and one of the reasons for this is that we can build Murphy Creek. This leaves 4 million acre-feet of capacity which is Arrow. This is one of the things that we have to leave, for this reregulating function is provided for by 13 million acre-feet of base storage which is given the first added position. I believe that from Canada's point of view we do not have to regulate the water. This bay storage which has a superior credit position to our storage must be left with something to do.

Mr. DAVIS: You have said that storage upstream in Canada is of increasing value to the United States. Would you not at some stage be tempted to regulate that other 50 per cent of water which enters below Mica creek which can be regulated in the Arrow as well? Would you not be driven to do some substantial regulation on the Arrow lakes if you were to follow the development of the upper Columbia?

Mr. HIGGINS: I believe this would depend on the ultimate developments. Now, under the thesis which the government has adopted as its final position—in fact it is the cornerstone of its whole argument that the value of storage decreases over time—there would be no need for High Arrow. However I disagree with that. If in fact that the total benefits to storage do increase over time, then I think it is quite conceivable that in the far distant future a great rediscovery might be made which would make a justification for flooding the Arrow lakes valley.

Two things will happen. If it is not flooded out now, it will become a more expensive project to build, because it will have developed, and therefore have to be justified by even higher benefits. If I am correct, then possibly in many years to come there is a chance that the Arrow lakes project might be built. But I would suggest that if it were built, we would require to be very, very handsomely paid for it.

Mr. DAVIS: You think that the values exist, and that payments might be forthcoming, and that hence the people resident in the Arrow lakes would be always under the threat of some major development occurring in that valley?

Mr. HIGGINS: Well, if I am correct, then I think that perhaps the threat might exist. But by our bargaining position in this thing it would improve. I have the full weight of the government of Canada and the government of British Columbia that says that I am wrong; and if I am wrong; then the situation would not arise. If the government's position is correct, and we do not build a High Arrow later on, and they do not built it now, then they cannot build it later on, and those people in the valley are safe.

Mr. DAVIS: Your basic reasoning would lead to some substantial regulation in the Arrow lakes valley in the fullness of time.

Mr. HIGGINS: I think there would be a tendency in that direction, but again you have alternatives. We may find that the value of the Arrow lakes for recreational purposes may be enhanced, and there may be alternative ways to produce power.

Mr. DAVIS: Those other values have to be balanced against the comparable values in the mountain trench.

Mr. HIGGINS: When you live in a valley where there is a dam site, there is always the prospect that one day it will be economic to build a dam in the valley.

Mr. DAVIS: Thank you very much.

The CHAIRMAN: Might we get on to Mr. Leboe, now?

Mr. LEBOE: I hope the answers to my questions will be short, perhaps a yes or no. Now, would you rather see no treaty at all, Mr. Higgins, than the treaty which is before us? As you know, it is either a case of rejecting it or accepting it. Would you answer yes or no?

Mr. HIGGINS: In the conclusions of my brief I said, without an alternative that you should reject it.

Mr. LEBOE: If it were rejected, it is possible that we have no treaty. That is your view?

Mr. HIGGINS: That is my view.

Mr. LEBOE: In the presentation paper, the blue book at page 62 they say:

As explained below, the Arrow lakes dam became an indispensable project for Canada during those negotiations. . . .

This was apparently the Canadian liaison committee. Would you like to comment on that, because we have been talking about the technical part of it, and on page 63 they say:

Arrow lakes therefore played a very essential role in Canada's negotiations for the essential first-added credit for storage.

I would like you to comment on that. I am thinking of the negotiations and with emphasis on the negotiations. This is a negotiated treaty. It is not something about which you can say "this is all mine and you can go and jump in the lake." I would like you to comment on this, and on the negotiating end of it.

Mr. HIGGINS: I would not subscribe to this view. I know that this is a view which has been held in certain quarters of the government where the emphasis is on water.

Mr. LEBOE: I do not like to interrupt, but the statement is not a matter of a view. It says that the "Arrow lakes dam became an indispensable project for Canada during those negotiations and was, therefore, included in all Canadian proposals made throughout the course of negotiations." That is on page 62. It says "because and was". Here is a statement that they conclude as a fact with their negotiations. Surely the people who were negotiating would have some pure knowledge of what the results were that they were after, and what the conditions were in getting those results.

Mr. HIGGINS: This could only become, as stated, a key factor if it were conceded by the Canadian negotiators. I do not believe with an investigation of the alternatives available, that this is a necessary concession to make.

Mr. LEBOE: In other words, you are saying that they were in error in taking this conclusion?

Mr. HIGGINS: One result of taking this conclusion is the treaty that was signed, and one of the assumptions underlying the treaty and protocol is that the Arrow lakes is a key project. In the presentation paper I notice that they refer to the Arrow lakes storage as a key project on one page, and they refer to the Mica creek project also as a key project.

Mr. LEBOE: I think that was done quite easily, because in one case you are talking about power benefits and in the other you are talking basically at this particular point about first added credits of flood control and downstream benefits.

Mr. HIGGINS: For flood control?

Mr. LEBOE: And downstream benefits.

Mr. HIGGINS: For flood control? I do not believe that the Arrow lakes is without an alternative.

Mr. LEBOE: I realize that; but in their statement that this is so, and the difference between the two, there is wide emphasis placed on the two points. In one case it was power and in the other case it was certainly flood control and downstream benefits.

Mr. HIGGINS: I know. This is the very point in dispute. If you accept this thesis, then you accept the Arrow lakes as being an essential portion of the treaty.

Mr. LEBOE: The reason I ask the question is that I am thinking of economics here, and I am thinking of the fact that there were individuals who were actually negotiating with people who had an axe to grind. If there are people with axes to grind, they have to get together on some common ground. I was not negotiating and neither were you. I am in the position of having to say that the people in the negotiating business had to weigh one thing against another in the negotiations, and they say that the Arrow lakes became a very, very expensive project. That was the idea I was trying to get at.

Mr. HIGGINS: I think that negotiators always have to weigh one thing against another.

Mr. LEBOE: Do you say they are wrong in this case?

Mr. HIGGINS: If they come up with a solution which is acceptable, then they are right. But if they come up with a solution that you do not think is acceptable, then they are wrong. I would say they were wrong.

Mr. LEBOE: Some of these are not too important, so we will not take a great deal of time. However, you did mention that the only maps they had in the early stages of 1944 were the David Thompson maps.

Mr. HIGGINS: I am told this is so.

Mr. LEBOE: It is my understanding that as early as 1944 the British Columbia government had aerial surveys of that whole area. Is that right? I understand they photographed the whole area.

Mr. HIGGINS: I am not familiar with when this was done. I believe it was as soon as the reference came to the International Joint Commission, and the International Columbia river engineering board was set up. One of the first things they did was a detailed survey of the areas, and they produced some very excellent maps of the river valley showing the contours and all the information which is necessary for calculating storage capacities and the like.

Mr. LEBOE: That is what I thought. On the matter of diversion of Canal Flats, you said it is not regulated. It is my understanding that the diversion at Canal Flats would have flood gates. In order to avoid one crest on the Columbia being built up more by a diverted crest from the diversion at Canal Flats, there would be flood gates to let the water go down to normal level.

Mr. HIGGINS: I think the point I am making here is that at Canal Flats you have more than you need for diversion during the high flow periods and less than you are permitted to divert during the low flow periods. If a very high flow comes down, then presumably you will divert all of it that you can consistent with safety. During the low flow period, there just is not enough water to make the same kind of diversion. Therefore, if this comes down, it will follow more or less the same seasonal pattern as the flow of the river.

Mr. LEBOE: I just want to clear up that point. It left the impression there were no possibilities for any regulation.

Mr. HIGGINS: No. You have the opportunity to either divert or not divert. You are controlling this thing by a faucet which you can either turn on or off, but there is no plug in the basin.

Mr. LEBOE: That is the only point I want to clear up. With regard to the conclusions which are mentioned on page 21, which were the conclusions of the

international Columbia river engineering board, I want to find out from you whether or not there was any consideration for downstream benefits in the conclusions that were brought into being here at this point.

Mr. HIGGINS: No. This certainly was based on ignoring the border, as though the whole Columbia basin lay within one country.

Mr. LEOE: Actually, the conclusions reached there are not practical in the sense they can be adjusted in any way to any opinion regarding our treaty. Is that right?

Mr. HIGGINS: I think, as Dr. Davis and I mentioned this morning, the international Columbia river engineering board primarily is a source of very useful information and facts, and the conclusions reflect these facts, but they also reflect the assumptions which went into the analysis.

Mr. LEOE: I do not think the end costs, taking into account the downstream benefits, would look anything like the ratios that are placed here in these conclusions.

Mr. HIGGINS: This is true. This looks at the over-all pie; it takes no account of how the pie is divided.

Mr. LEOE: I am not disputing what you are saying, but I think the impression was left that these conclusions would have some relativity which they actually do not have when the downstream benefits are taken into account.

Mr. MACDONALD: Mr. Higgins, this morning and a few minutes ago you said you are not a lawyer. There are a number of legal conclusions which are central to your argument. Did you obtain the opinion of a legal counsel in international law to support the conclusions you draw in the brief?

Mr. HIGGINS: In respect of that, I would say the business of an economist is rather similar to the business of a lawyer. A lawyer who specializes in medical cases is inclined to expose himself to a fair amount of medical lore, and so on. I have consulted the literature on this matter. Particularly with regard to diversions, I have relied very, very heavily upon the statement by the Hon. Jean Lesage where he enunciated in some detail the view of the government of Canada with regard to the rights of Canada under the boundary waters treaty, and if this committee would find itself agreeable, I would be happy to give you a copy of that article for file.

The CHAIRMAN: We have that material.

Mr. MACDONALD: My question was quite specific. I asked the witness with regard to his interpretation of the treaty and protocol. Of course, Mr. Jean Lesage was not concerned with those two legal documents, and any opinions and, in fact, any literature that might be referred to with authority as legal propositions with regard to this would have to be those published essentially since these two documents were published. To my knowledge there has not been any published analysis of the treaty.

Mr. HIGGINS: With reference to this, I think I would say that in a situation where an operating entity is constrained in its operations by the terms of a treaty—normally an electric utility is trying to maximize against nature, but in the case of the Columbia, as in the case of the Niagara, they are attempting also to maximize against the terms of a treaty. In this situation I predict with great confidence that on the part of both of the power entities on either side of the border, and the flood control entity on the southern side of the border, there will be continuous effort to stress the interpretation of this treaty to suit their own advantages to the maximum amount possible.

Now, looking at this from that point of view, and looking at it from the United States point of view, one asks oneself, is it possible to construe this

treaty? Can an argument be made; are there any ambiguities in the language which can be exploited which would have disadvantageous results from the point of view of Canada? These arguments can become extremely involved. I think you have only to consider the argument which has developed over whether the word "party" is spelled with a small "p" in article II of the boundary waters treaty; should it have been spelled with a capital "P", or with a small "p". This is the type of argument you get into. Therefore, I believe that if you can construe a treaty so that it does not appear to mean what you think it means—

The CHAIRMAN: Surely, Mr. Macdonald, it is not fair that this witness be asked a series of questions in respect of interpretation of legal documents?

Mr. MACDONALD: This witness has asserted a number of propositions founded upon legal interpretation. My point is that the treaty and protocol at all relevant points are capable of coming before an international arbitration tribunal governed by international law, and General McNaughton told us when he was faced with that situation he accepted his incapacity and kept at his elbow qualified lawyers all the time. Has the witness taken an opinion of an individual qualified in public international law upon which to found his interpretation? Have you any qualified opinions to support your point of view and, if you have, would you specify?

Mr. HIGGINS: Mr. Chairman, I think the answer to that would be that I have discussed it informally with legal friends of mine but I have not retained legal counsel.

Mr. MACDONALD: Could you tell me who the authorities are with whom you discussed this?

Mr. HIGGINS: I think I had conversation with you on the subject.

Mr. MACDONALD: I do not think we have had a conversation at all unless it was on the question of the protocol; we certainly have not had a discussion on the interpretation of the treaty and I never have given you an opinion to support the proposition you are putting forward.

Mr. HIGGINS: Let us say I have had casual conversations.

Mr. MACDONALD: Then, apart from myself as a qualified person who else have you discussed this with?

The CHAIRMAN: Mr. Macdonald, I think you have made your point. With respect, Mr. Higgins is an economist.

Mr. MACDONALD: All right, then. Since we cannot go into the legal question, following from a reference to the legal question on page 31 you have made the statement that whatever the legal rights these rights perhaps will not be exercised in the interests of international "comity". Would you elaborate what you had in mind in using the word "comity"?

Mr. HIGGINS: Well, my impression as a layman of the word "comity" is the difference between doing something under legal obligation and doing something in the interest of good relations; in other words, if you had something from the point of view of "comity" there is no legal compulsion. Correct me if I am wrong in that.

Mr. MACDONALD: Relating that specifically to the situation do I gather your implication is that whatever legal rights Canada might have she might not be able to exercise them for reasons, as you say, of "comity".

The CHAIRMAN: Now, Mr. Macdonald.

Mr. HIGGINS: I think what I am talking about here is the situation whereby the treaty gives us the right to divert the Kootenay after 60 and 80 years and, in doing so, we will render virtually useless the Libby dam. As a matter not of law but of the practical conduct of affairs I am merely making the assertion

that the putting in of duplicate investment for this purpose and rendering the Libby dam useless is not very likely to come about.

Mr. MACDONALD: And, by the same token, in putting the Libby dam in and by its operation rendering the west Kootenay plants useless, the same principle should apply.

Mr. HIGGINS: No, I think the situation is different because the Libby dam does deliver in one way or another its water to the west Kootenay unless this water is diverted out of the reservoir.

Mr. MACDONALD: It is not whether it delivers but whether it delivers effectively.

Mr. HIGGINS: No. In the case of making the diversion Libby is deprived absolutely of the water.

Mr. MACDONALD: Well, all I am saying is that if "comity" is the principle that applies in the circumstances it is no more likely that Canada will not enjoy the benefits and so will suffer the detriments if it exists in international relations.

A moment ago I was interested in your answer to Dr. Stewart. I hope you will correct me if I am wrong but as I understood you to say, you would favour no construction of High Arrow at this point nor an interconnection agreement, but in due course you would go to the Americans when you are starting to machine Mica and insist on an interconnection agreement, and if they failed to enter into one you would run Mica the way you like anyway.

Mr. HIGGINS: I think I suggested that the United States officials would be more likely to come to us upon the termination of any agreement which we might have with them to operate Mica for power benefits—for downstream benefits—and if the interconnection agreement could not be negotiated then Canada would suffer no damage; but if the interconnection agreement could be negotiated, then I suggest it would be the United States which would take the initiative in opening its negotiations, and then we would share in half of the improvement.

Mr. MACDONALD: You say if it could not be negotiated we would suffer no damage; surely if we entered into an agreement or a treaty with the United States on the basis of sequence IXa which could be as much as the present treaty on the basis of the International Joint Commission principles, namely calling for the delivery of downstream benefits in exchange for an assured plan of operation, we would be prohibited from maximizing our power benefit from Mica if we had to continue to deliver from that in accordance with the assured plan of operation.

Mr. HIGGINS: If we made the treaty for a longer term than necessary, that is correct, and this is an argument for not making it for a longer period than necessary. And, I submit 60 years is too long.

Mr. LEBOE: You mentioned the words "longer than necessary"; here again, not being one of the negotiators, would you say you are in a better position to know what is longer than necessary?

Mr. HIGGINS: If you ask me my personal opinion I would say yes.

Mr. DAVIS: I have a supplementary question. You would build Mica creek first?

Mr. HIGGINS: That is correct.

Mr. DAVIS: And, this presumably would take roughly 10 years, which would be 1973.

Mr. HIGGINS: I am not sure of the construction period of Mica creek.

Mr. DAVIS: Well, let us assume that. In that case, for how long a period would you use Mica creek to regulate water for the United States?

Mr. HIGGINS: I believe we would face a choice here. I would suggest that the optimum solution from the Canadian point of view would be that the transfer would take place when the loss of at site benefits arising by virtue of regulating for downstream benefits exceeds the amount of the downstream benefits; in other words, when we can make more money regulating for our own purpose than we can for the diminishing quantity of downstream benefits.

Mr. DAVIS: When do you think it would occur, for example in the 1980's?

Mr. HIGGINS: I would guess roughly that. Let me put it this way; if we proceed on the basis of the price which is contained in the protocol I would suggest that we probably should terminate the power agreement around the early 1990's.

Mr. DAVIS: In other words, you would operate Mica creek as a reservoir and, therefore, have not on site production until the 1990's?

Mr. HIGGINS: No. What would happen is that as the Mica project came into production for on site power other storages would be constructed.

Mr. DAVIS: You refer to other storages such as High Arrow?

Mr. HIGGINS: No, I refer to other projects such as Luxor and possibly Murphy creek, and the amount of storage committed to supply downstream benefits would decline. Are you aware of the curve for the 1970 conditions as it appears on page 60 of the blue book showing how the incremental benefits from additional storage would decline very rapidly as the amount of storage increases?

Mr. DAVIS: You say Mica creek as a reservoir for storage purposes would last for no more than 20 years?

Mr. HIGGINS: Yes, something of that order.

Mr. DAVIS: Do you think you would still get an agreement with the United States whereby it would make investments in a project with a limited life of 20 years?

Mr. HIGGINS: As soon as the machines are put in at Mica creek, at Downie and Revelstoke, much the same thing could be accomplished by an interconnection agreement.

Mr. RYAN: Who would pay the cost of building the Mica project at the outset?

Mr. HIGGINS: I would suggest that a substantial portion of this cost could be financed through the downstream benefit sale even on the terms as contained in the protocol.

Mr. DAVIS: That amount would be diminishing for 20 years?

Mr. HIGGINS: If the cost were capitalized to about 1993 the capital and operating costs would be recovered on the basis I have set forth in my analysis for the treaty project itself. We still have these same problems. Where benefits are assigned to projects we make a very large profit on the first added storages, but on the later added storages we would incur a large loss.

If you wish I can elaborate on the background and give an approximation of the division of power benefits between the individual projects. We could find out how the individual projects work out. If we did not build the Mica project and did build the Arrow and Duncan projects, then we would have something in excess of \$150 million which we could put in the bank at five per cent. If we wanted to build the Mica project sooner we would have less, but if we wanted to build it later we would have more as it gathered interest. During the only year that the Mica project is committed to the treaty and operated as a storage project it loses money. This project absorbs the profit which we make under the treaty scheme at High Arrow and at Duncan lake.

Stating this in economic terms our marginal costs exceed our marginal revenues and therefore we have gone beyond the point of making a profit.

The CHAIRMAN: Gentlemen, we seem to be moving from one path to another. Originally on my list I had the names of Mr. Macdonald and Mr. Gelber, who I see is waiting very patiently.

Mr. GELBER: I am always patient, Mr. Chairman.

The CHAIRMAN: I see that Mr. Cameron is asleep.

Mr. CAMERON: Excuse me Mr. Chairman, but if I were to make comments about your appearance sometimes they would be much more pointed and with much more justification.

The CHAIRMAN: Mr. Cameron, you have been very kind. Actually I am very sorry for Mr. Gelber knowing how anxious he is, and for Mr. Cameron who has had his hand up for some time. I wonder whether I may ask all members to co-operate and refrain from asking supplementary questions.

Mr. MACDONALD: Mr. Chairman, I shall try to be very brief.

There is reference on page 14 of your brief, as well in other places which I have not been able to turn up, to the construction of the Calamity curve project. Do I understand that you suggest a change in the arrangements for Mica creek would eliminate the Calamity curve site?

Mr. HIGGINS: To which scheme are you referring?

Mr. MACDONALD: I am referring to either scheme.

Mr. HIGGINS: No, I do not believe your statement is correct. I think one of the things that the Calamity curve site depends upon is a regulated flow. I think we can get a fast check on this by comparing the output of the Calamity curve project to the international Columbia river engineering board thesis in respect of the various diversions.

Mr. MACDONALD: Finally, in your conclusions and I refer you to page 89 of your brief the second paragraph, you state:

Other agreements could be made quickly involving the building of Mica creek dam, Dorr dam and the Bull river dam for ultimate incorporation in the Bull river-Luxor reservoir.

The representatives of the province of British Columbia who appeared before this committee were quite adamant that they had had no change of heart about the decision they had made not to have the east Kootenay valley flooded. I wonder how this type of agreement would be possible in view of that situation?

Mr. HIGGINS: This idea would, of course, presuppose recognition by the province of British Columbia that now that other problems are out of the way, this is probably a superior way of developing the Columbia.

Mr. MACDONALD: In other words, you would not do this without the consent of the province of British Columbia?

Mr. HIGGINS: No.

Mr. PATTERSON: Mr. Chairman, I should like to ask one question in regard to the statement that Mr. Higgins has made that the other problems are out of the way. What other problems do you have in mind?

Mr. HIGGINS: In that connection I would refer you to the statement made in the House of Commons by the Hon. Howard Green on April 13, 1962 and to other suggestions which have been made that the reasons for the veto by British Columbia regarding the construction of storages in the east Kootenay during the course of negotiations were related to the development of the Peace river project.

Mr. LEBOE: How would they be related to that development? I do not follow that statement.

Mr. HIGGINS: If you check the newspapers of those days you will see that the problem involved markets.

Mr. LEBOE: Would those problems not still exist if they related to markets?

Mr. HIGGINS: The problems existed at that time because, and you will perhaps recall this, negotiation of the treaty was for the purpose of providing energy for British Columbia from the Columbia. At the same time investigation was proceeding in respect of development of the Peace river with the idea that potential output of the Peace river would supply the same markets. It was widely recognized that the market was only so big and could not absorb the output from both of these rivers.

Mr. GELBER: Mr. Chairman, most of my questions have been asked by other members in the form of supplementary questions and I will pass.

The CHAIRMAN: I am grateful to you, Mr. Gelber.

Mr. Cameron, I trust you appreciate that I did not really think you were asleep.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You should not have said so in that event.

The CHAIRMAN: I only said so because you were looking so very patient and quiet and I felt sorry for you.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I am a very patient man. I am renowned for my patience.

Mr. Higgins, have you the brief of the Montreal Engineering Company before you?

Mr. HIGGINS: Yes, I have.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I wonder whether you would be kind enough to turn to page 1 after the summary where you list the objectives of this submission.

You will notice that they say the primary objectives of this submission are to examine the probable financial results to Canada and to compare these financial results and the alternative program of development.

My question is this: within these very narrow limits, do you consider the Montreal company's brief has established the superiority of the treaty plan?

Mr. HIGGINS: I would say, Mr. Cameron, that given the assumptions and given the alternative which the Montreal Engineering Company has suggested, one would presume that they had done their arithmetic correctly and that the numbers which result from these assumptions would support that view.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That brings me to my next question. On page 6 of their report there is a reference to the 1959 report of the international Columbia river engineering board and a reference therein to an alternative scheme of development. Was this alternative scheme which is referred to by the Columbia river board the same as the scheme that is contained in the Montreal company's submission?

Mr. HIGGINS: I presume this reference is to sequence IXa. If you look at appendix XI of the Montreal Engineering report you will see the projects which are contained in that, and they appear to be substantially the projects of the international Columbia river engineering board report. However, as I said this morning, I do not believe this represents the alternative that the critics of the treaty have been talking about because it does not solve the local flood control problem properly until 1988. You will see the Dorr storage and diversion is put in in 1988.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Do you consider the plan produced by the Montreal company, which would include the provision of the Dorr Storage in 1988, is more economically desirable than the original sequence IXa?

Mr. HIGGINS: I believe this is substantially the IXa sequence. One of the things I am looking for is the Duncan lake plant, which I do not see there.

Certain projects have been committed for construction and operation under the treaty. One of the things that the Montreal Engineering Company is not too specific about is which ones of these are committed projects, which have a timetable and an operating regime associated with them, where the money has to be sent by Canada and which are optional expenditures by Canada which can either be constructed or not at any time as circumstances may dictate.

I suggested this morning that the scheme here does not really solve the problem. I have looked over their allocation of the flood control payments too, and as a result of the scheduling of the various projects we come to rather different conclusions.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You mentioned a short while ago in an exchange with Dr. Stewart that you could find in the Montreal brief the basis for a total of some \$202 million for the Dorr-Luxor section of the project. Can you explain how this discrepancy with your own figure of \$155 million arises?

Mr. HIGGINS: The information which I had in the brief was derived from the international Columbia river engineering board data. The Montreal Engineering Company has come up with new data which indicate that these costs have risen in the order of \$50 million or so. I am not aware of the details.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It covered the same projects? Did it cover the same number of projects?

Mr. HIGGINS: What is at issue here is the Dorr plant, the Bull river diversion and the Luxor plant, which are the second and third from the bottom, and the Bull river storage which is third from the top. It is the sum of these items in column 1, but these columns have been left blank in the Montreal Engineering report. They have been put on a 1973 basis which means you have to discount them at 5 per cent from 1973 to the time they are built, and then you get the current cost.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Higgins, you heard Mr. Macdonald pointing out at the end of his questioning that the government of British Columbia expressed its opposition to the development of Kootenay. As an economist, would you consider this is a more decisive factor in making a decision than economic factors?

Mr. HIGGINS: I would think so, probably yes. The Columbia river is a superb river and it can be harnessed economically in any number of ways with viable results. For example, I would dispute the notion that the Columbia river in Canada could never be constructed without co-operation from the United States. I believe this is just a question of time. At certain times the statement has been true, but as time goes on it becomes less and less true.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It appeared to me, Mr. Higgins, when you were giving your evidence that you had some disagreement with the analysis of flood control contained in the Montreal brief. I wonder if you would care to comment on that?

Mr. HIGGINS: Their analysis is contained in appendix VIII, page 2. In conjunction with this, I believe it would be helpful to look at the green book at page 144 which shows how the flood control benefits were calculated.

You will notice that for primary flood control in this scheme the effective storage available for flood control is considered to be 1.9 million acre feet.

This is considered at the bottom to be 70 per cent effective. Therefore you multiply 1.9 by 0.7 and get 1.33 and then you look at page 145 of the green book and you see that Libby's credit is 1.33, and this is 90 per cent effective.

I believe in this respect the Montreal Engineering Company has made a small slip because if they are just considering the flood control in Libby, the 1.33, they should have considered only 90 per cent of it as being the fully effective portion, and they they should have applied the effectiveness factor back to this. This would result in something less than the 1.9.

To take this a step further, if you look at tables 1 and 2 on page 144 of the green book, you will see that we have what is called a 22 per cent bonus on our storage on the Columbia. In other words, during the negotiations we were able to negotiate a reduction in the flood credit to Libby in the order of 22 per cent of the fully effective flood control which we have on the Columbia, and this is a gain in the negotiations. However, in looking at the alternative where we are building the storages on the east Kootenay, this 22 per cent, which is a bonus under the treaty, is a penalty if ignored in evaluating the alternative. If we were looking at the Dorr-Bull river alternative, we would not have to deviate from this desired United States objective of rational distribution, which is what they call it, so the storage would be available more or less in the proportion of their mean contribution. Therefore, you would have to add back this 22 per cent in order to create a credit back to the east Kootenay storages.

If you do this and you also credit the Dorr and Bull river reservoirs, you have enough capacity to do the storage that Duncan lake does too. Therefore, what you have here in effect is a total of 2.252 million acre feet of fully effective flood control storage at the Dalles, and if you consider this is 68.9 effective, you come up with the result that the United States wants.

There is a further point with respect to flood control. The point of rational distribution perhaps does not make too much difference in a project such as Bull river-Luxor for a flood control proposition because you have an option play on the Kootenay and the Columbia. Later, when Luxor is added, I think you obtain more flexibility. Therefore, the net result of these computations is to increase the annual credit from \$1.8 million to \$3.48 million, which is a pretty substantial improvement. If you practically double the flood control benefit, then I believe the alternative plant tends to be rather improved in its economics.

I notice here in paragraph 2 that for the local benefit which is available the Montreal Engineering Company has taken 1.9 million acre feet in Bull river. They have only taken 1.9 million acre feet and they have prorated it against Libby. This I think is an error too because if the 5.01 million acre feet of the Libby reservoir is available to meet the local flood control objective, then surely the 2.794 million acre feet or the full capacity of the Bull river reservoir is also available, and if they want to do this prorating I would suggest they should have used the 2.794 instead of the 1.9 figure. Assuming every acre foot is equally valuable to prevention of these damages, I would suggest this is probably a non-linear relationship as in the flood control analysis in the green book. For the objective of 800,000 c.f.s., not much is required and it has a high value. The end bit of the value is only worth 11.4 cents in terms of annual damage, and a large amount of storage is required to provide this. Therefore, the kind of operating you should have on the local flood control basis is not this 1.9 but at least 2.794 and the proportion of damages prevented would be much greater than the fraction 2.794 over 5.01.

Therefore, this has had the effect of again penalizing the Montreal Engineering Company's alternative plan. They have omitted credits for Duncan lake, which is only 56 per cent effective on a tributary but would be more

effective there. I believe they have made a pardonable slip in deriving this 1.9, but they have neglected the rational distribution argument, and together these things make quite a substantial difference in the credit. For example, if you assume the 2.794 plus 881,000 acre feet which is available at Dorr, giving a total of 3.675 million acre feet available the fraction 3.675 over 5.01 would account for very nearly all of the \$815,000 of local damage. If you assume, as I did, that it accounts for all of it, then the capitalized value comes out to \$48.6 million in United States currency compared to only \$24.1 million credit in the Montreal Engineering Company's report. These are done substantially on the same basis with the same arithmetic but with different assumptions and sequencing of projects.

Mr. DAVIS: I wonder if I might ask whether you have made a comprehensive calculation which produces the number of mills per kilowatt hour for sequence IXa?

Mr. HIGGINS: I have not taken it as far as the Montreal Engineering Company has done. I have done my analysis just of the projects which would likely be committed for the treaty. The balance is optional. I presume they would be roughly the same under both circumstances, dependent on the timing.

Mr. DAVIS: Ideally you would use the figure of 1.9 mills which Montreal Engineering produced for the treaty program. Would you suggest that your figure would be higher or lower than that?

Mr. HIGGINS: I find it difficult to predict how these things are going to come out. I would not care to venture a prediction.

Mr. DAVIS: You cannot produce now working sheets to show a figure of an order, of let us say, 1.9 plus or minus?

Mr. HIGGINS: No. I have working sheets which are on the same basis as table 1 of the background paper.

Mr. DAVIS: In other words, in the terms merely of an economist you have not a specific comparison to show sequence IXa as against the treaty program.

Mr. HIGGINS: No, not in terms of full development. I have looked at the projects which will be committed to the treaty, in other words, the ones which we would construct first. I have assumed in this that we would sell downstream benefits at a price of 2.7 mills per kilowatt hour, or \$5.50 per unit of capacity. The blue book gives the information which enables one to allocate these downstream benefits to various increments of storage: I have done it in more or less the same way that the Montreal Engineering people did, but using more points on this curve, which are derivable from the blue book. They just use the increments of 1.7, 7.1, and 15.15.

Mr. DAVIS: In terms of power cost, and perhaps continuing right down on power cost only, you do not have evidence to present that sequence IXa is more economical than the treaty plan?

Mr. HIGGINS: The key to the ultimate cost of power from the Columbia is, I believe, how much of the capital cost of Mica can be retired on this downstream benefit agreement with the United States. Now, the way this works out in those terms is that if you make an agreement with the United States terminating in 1993, then you will have paid for Mica creek and Dorr and Bull river.

From the point of development in Canada I believe that the remainder of the investment is entirely optional. For instance, Downie and the at site power things are optional, and I believe you get a pretty reasonable comparison by doing this.

Mr. DAVIS: You have a basic assumption here that the United States will enter into a treaty and sale agreement limited to twenty years. In other words,

it will write off its investment not in 60 years but in 20 years, and its costs will be up perhaps by a factor of three.

Mr. DAVIS: You are confident that the United States will pay three times as much for the power?

Mr. HIGGINS: I am confident that the United States regards this deal as an extremely good one. The investment which they make will not have to be written off because, even if we operate ourselves for at site power, they will still derive very substantial benefits. They will not derive the same level of benefits as they would if we were operating 15.5 million acre feet of storage exclusively for their use, but they still, as a by product, derive a fairly healthy chunk of that. In fact, that was the original American approach to this treaty. They said we can wait a while because the Canadians are going to develop the Columbia eventually anyway, and we will sit back and get the gravy.

Mr. DAVIS: That is an argument in favour of their waiting and not paying as much.

Mr. HIGGINS: Yes. But they will still get benefits.

The CHAIRMAN: Now, Mr. Cameron.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I have finished.

The CHAIRMAN: Now, gentlemen, does that terminate the questions?

Mr. HERRIDGE: No, I have a few questions to ask Mr. Higgins.

The CHAIRMAN: Oh, I am sorry. Please proceed, Mr. Herridge.

Mr. HERRIDGE: On page 16 of your brief in the second paragraph you say:

A very attractive feature of the High Arrow dam to the United States is the fact that it is located below Revelstoke canyon dam site, and consequently it seems unlikely that any waters stored there would be diverted out of the Columbia basin.

Would you mind explaining more fully what you have in mind there? For instance, suppose there was an ultimate diversion found necessary to the Okanagan or some other point?

Mr. HIGGINS: There are possibilities of making diversion out of the Columbia river under article II of the Boundary Waters Treaty so long as such diversions are confined to flood waters. Then we could do this without leaving ourselves open to a damage claim by the United States. But the lowest point on the Columbia at which any of these diversions have been discussed is the one out of Revelstoke canyon dam forebay through the Monashee mountains and into the Thompson and then down to the Fraser.

This remains a physical possibility which we have the legal right to do, and whether again this is a right which is exercised or not, it gives us an alternative use for water which we are now delivering to the United States.

As long as you have an alternative use it does not matter whether you are actually going to use it, but as long as this possibility exists, then the possibility also exists for the United States to make an offer in terms of downstream benefits which would deter Canada, on economic grounds alone, from making those diversions simply because they could not get as much power from the United States.

In other words, it puts a floor under these declining downstream benefits; whereas with the High Arrow, once your agreement is terminated, we have really no other use for High Arrow, and the United States will be able to drive a fairly hard bargain.

I think the choice lies between using the High Arrow dam to keep the levels of the Arrow lakes reasonably steady at some level which is satisfactory to all concerned, or just to get a minimum of downstream benefits from them in any new agreement.

Mr. HERRIDGE: At page 19 of your brief, I read as follows:

Two conflicting objectives are also noted. Since all storage in Canada is upstream from existing plants in the United States, it does not matter just where the storage is located. On the other hand, the closer such storage can be located to the border, the better will it suit the United States, because there will then be a minimum of Canadian interest in the operation of this storage.

Would you mind elaborating on that? It is a very interesting point.

Mr. HIGGINS: Well, in connection with Mica I think we have spoken of an interconnection agreement and that we would like to operate Mica one way, and that the United States people might like us to operate it in another way. If we sign an interconnection agreement we might operate Mica to smooth the flows at the border rather than to arrange them at Downie creek and Revelstoke to suit the Canadian load. In other words, the substitute for operating Arrow is the interconnection agreement.

So far as these conflicting objectives are concerned, I think the United States is more interested in us building High Arrow than it is in having things further upstream, simply because their bargaining position is very strong once we have built High Arrow. The main bargaining position we have now with regard to High Arrow is the fact that we have not built it. Once we have built it, and the agreement, whatever it is, terminates, then we are pretty well at their mercy. Of course, if it is built there, then we will be willing to accept just a minimal payment for it.

Mr. HERRIDGE: Mr. Higgins, Mr. Kelly who is a soil survey expert for the provincial government made an address to the Okanagan-Kootenay branch of the agriculture institute of Canada of which I am a charter member, and as a consequence have a copy of his address. It is a very interesting address in many respects; but he made what I thought appeared at the time to be a ridiculous proposal. Apparently he was concerned about the flooding of the beaches and the land along the Arrow lakes, and as far north as Revelstoke. He suggested probably it would be in the interests of Canada to build High Arrow at the present time and have the people settle and build their residences at higher levels above High Arrow, and then in the future destroy the High Arrow dam so that the water would be released and all this good land would be preserved, he said, for 100 years and we could then ensure its use for generations to come. What do you think of a proposal like that?

Mr. HIGGINS: I am not familiar with a proposal like that. The only comment I think I could make is that if this can be described as progress, it is only progress with a very small "p".

Mr. HERRIDGE: Would you refer to page 24. There has been some reference to this on several occasions during these questions. In the second paragraph you say:

From the point of view of Canada, the construction of Libby dam constitutes a major threat to the future bargaining position of Canada after the structure is built.

You did mention that it is very unlikely that the United States authorities would wish to destroy an investment of \$350 million in Libby to provide us with the opportunity to divert the Kootenay. Would you say there possibly are other developments which might occur which would make it more difficult so far as diversion from Libby or the building of communities and establishment of industries, and things of this sort are concerned.

Mr. HIGGINS: One of the things that I really do not feel very clear about in my mind is what would be the situation with regard to diversion of the

Kootenay if it should happen that a large diversion were made from the Libby dam for consumptive purposes before the 60 years are up?

Mr. HERRIDGE: They have the right to do this.

Mr. HIGGINS: They have the right to make a diversion for consumptive purposes provided they do not generate power. The problem I am facing which bothers me is with regard to the situation if the treaty should be terminated on the first day it can be terminated, 60 years after the ratification date and we can commence the diversion 60 years after the ratification date. The exculpatory clause in article XVIII, I believe in section (2), says there would not be any damages by any action taken under the treaty. I really do not know whether or not this would apply. If it did not, and the United States could collect the damages if we made the diversion, perhaps we would not be able to make the diversion, depending on how much vested interest had grown up and what the damages would be.

The CHAIRMAN: Surely this is a legal question.

Mr. HERRIDGE: I was not thinking of it in that way when I asked the question.

The CHAIRMAN: It is a projection in political possibilities.

Mr. HERRIDGE: Mr. Chairman, I have quite a number of other questions I would like to ask of the witness. Is the witness willing to return this evening?

Mr. HIGGINS: Yes.

Mr. HERRIDGE: Then let us adjourn until eight o'clock.

Mr. BYRNE: He may be willing to return, but I am not.

Mr. RYAN: I do not think it would be possible to get a quorum this evening.

The CHAIRMAN: Would you continue, Mr. Herridge?

Personally I am opposed to these delays and the proposition that we might not have a witness for some days now. We have to be much more tidy than we have been and complete each witness.

Carry on, Mr. Herridge.

Mr. HERRIDGE: Very well. On page 26, Mr. Higgins, you say:

From the United States point of view, one of the principal benefits from regulated flow on the lower Columbia is the investment opportunity which it receives to increase its flexible hydro capacity at very low cost.

That is not very clear to me. Would you mind giving us a little more detail.

Mr. HIGGINS: I think it has a bearing on this argument about peaking which has come up very frequently. The argument here is that the availability of regulated flows and in particular the increase of minimum flows will make it economical for the United States to build much more hydro and much less thermal capacity.

Peaking normally is thought of as a daily proposition, and I believe Mr. Vadeson described this yesterday. The difference between this kind of peak and seasonal peaking is that if the flows are unregulated, then they are at their maximum during the high flow season, and therefore the downstream power dams have the alternative of either producing at full output or, if they want to cut back their output, the water has to go over the dam, because there is no place else for it to go. This is a situation which is neglected in Annex B of the treaty, because step 1 of Annex B, the calculation of downstream benefits, started off with the assumption that the United States investment is with Canadian storage. These benefits would be reflected if there was another step in Annex B which stated what the total investments in hydro and thermal power in the United States would be with and without Canadian storage.

Now, this makes quite a difference in operating costs because when the flows are high the thermal plants are shut down, and this is the basis of the downstream benefits as they appear in Annex B. This is why they decline. But, when the flows are low, then the thermal plants are operating. This means the thermal plants are operating only a portion of the time when the flows are low. The net result is you have a lot of duplication. You have to have thermal capacity to operate when there is not enough water to drive the hydro generators and you use the hydro generators to generate when there is. This becomes an expensive proposition. Now, the thesis in Annex B of the treaty is that the extra investment in hydro, which is made economical by the regulated flow, increases the total capacity and this diminishes the downstream benefits. No account is taken of this investment and the duplicating investment downstream in the United States.

There is a conflict here. If this thesis is true there is no need for regulated flow; but yet under this treaty we have committed 15.5 million acre feet of storage for power purposes in the United States for 60 years. Under annex A (7) we have the option of withdrawing 3 million of these acre feet, and under the terms of sale, section (b) (iv) if we do withdraw these benefits we will have to reimburse the United States for them. Now, if this thesis is true, that the United States can get along without regulated flow as they add thermal to their system, why does the treaty then pay us on the basis of not providing the regulated flow and yet bind us to provide it? This is a conflict and a very serious one in this treaty. I would say you might also call it a double standard; there is one method of calculating for benefits and a totally different operating method. In my opinion, this is inequitable and is one of the principal reasons for rejecting this treaty.

Mr. HERRIDGE: At the bottom of page 26 you say:

Thus, both for reasons of necessity and strategy, it is to the United States advantage to build up a vested interest in releases from Canadian storage. On the other hand, the Canadian strategy in these circumstances would seem to be similar to that of a landlord leasing a piece of land for a long term. If the tenant intends to build, the landlord generally requires a clause in the lease to the effect that the buildings will have no residual value when the lease expires. Similar arrangements with regard to the Columbia are necessary if Canada is to protect its rights to divert. If the United States acquires rights to waters released from Canadian storages, then there would be nothing left for Canada to divert if its desire were to do so without causing downstream injury.

Mr. HIGGINS: This always has been asserted by the United States. Whenever Canada has attempted to build up downstream vested interests then the United States has made an assertion. I think the Waneta case on the Pend d'Oreille is a case in point; they have asserted their rights to divert—

Mr. BYRNE: If I may interrupt, Mr. Chairman, would this not be considered a legal opinion? After all, we have sat now for 10 minutes beyond the regular time, and this is the only day of the week we limit ourselves to 9 hours a day instead of 16. I am just wondering how much longer Mr. Herridge is going to be.

Mr. HERRIDGE: Mr. Chairman, I sat here all afternoon listening patiently to the questions put by other members; one took 40 minutes, and I demand my right to ask two or three more questions.

Mr. BYRNE: I am not denying Mr. Herridge this right; he has every right to put questions, the same as any other member on this committee. But, in respect of legal questions it has been brought to our attention that the witness is not a lawyer and has no legal knowledge.

However, Mr. Chairman, I would like to know if Mr. Herridge has a number of questions yet to be put, and if the answers to these will be prolonged. I think we should come to some agreement now when we are going to adjourn this meeting.

The CHAIRMAN: I am in the hands of the committee. Some witnesses have been able to answer questions rather directly and more rapidly than others. But, these answers in some cases have been quite extensive; I think the answer to one question took 25 minutes this afternoon. However, as I say, I am in the hands of the committee. We have just a quorum here at the present time. Is it your pleasure to meet again at 10 o'clock tomorrow morning?

Mr. HERRIDGE: Mr. Chairman, I move we meet at 10 o'clock tomorrow morning.

Mr. BYRNE: How many questions would the hon. member still have?

Mr. DAVIS: Let us finish the questioning tonight.

Mr. HERRIDGE: I have three or four more questions.

Mr. DAVIS: Let us finish them.

Mr. HERRIDGE: I had forgotten that this is Wednesday night.

On page 32 of your brief you mention:

American interests have therefore been pressing Canada to build storage in this country before it is required for Canadian use. During the course of the investigation, three attempts have been made to get storage in Canada before the investigation was completed.

Then, you go on to deal with these three things on page 33. Do you think that these attempts by the United States in pressing Canada to build storage in this country is because of the value of this storage to them, and that is why they have taken this action throughout the years?

Mr. HIGGINS: Well, Mr. Herridge, to answer as briefly as I can, the United States has a very pressing need for flood control and I believe this is a sort of agreed objective. In respect of these three things, there were the two applications for Libby; there was the Puget Sound utility offer to build and pay for Mica and there was the Kaiser offer to build a dam for Arrow lakes and return to Canada 20 per cent of the downstream power benefits. This indicates the United States is anxious for us to build storage. Also, they give us some criterion of offers which have been made and turned down in the past.

Mr. HERRIDGE: Mr. Higgins, we have heard evidence from consultants to the government of Canada, from representatives of the government of British Columbia and representatives of the federal government. Generally speaking, their decisions seem to have been based on the power aspect of the question and the immediate additions of cash to build these dams. In considering an over-all problem like this is it your opinion we should give consideration for making the decision to the constitution, to sociology, to the human values and to the resources and recreational values of the basin in the over-all plan?

Mr. HIGGINS: Yes. These are known generally as the intangible benefits and I say they are extremely important.

Mr. HERRIDGE: Do you think they have been given sufficient consideration in the drafting of the present treaty?

Mr. HIGGINS: I would say no.

Mr. HERRIDGE: Now, Mr. Chairman, I had one or two more questions, but—

The CHAIRMAN: Well, perhaps, Mr. Herridge, if they do not take too long, you could proceed.

Mr. HERRIDGE: Mr. Chairman, I did have one or two more questions but I will conclude at this point. I should like personally to congratulate the witness for his very clear and excellent replies to many questions.

Mr. MACDONALD: Mr. Chairman, I believe we have a free day tomorrow and, subject to the consent of General McNaughton, I would like to suggest that perhaps he reappear tomorrow to complete the testimony he did not have a chance to complete the last time he was here.

Mr. HERRIDGE: Mr. Chairman, the steering committee recommended that General McNaughton appear again on May 15, and that recommendation was accepted.

The CHAIRMAN: I wonder whether General McNaughton would be willing to appear tomorrow.

Mr. HERRIDGE: Mr. Chairman, we have arranged for the general to appear back on May 15.

The CHAIRMAN: General McNaughton, would you be prepared to meet tomorrow morning at 10 o'clock?

Mr. McNAUGHTON: Mr. Chairman, I have accepted an invitation to reappear specifically on May 15. I will require some time to review many of these briefs which have been presented. I would appreciate very much being allowed to appear again on May 15.

Mr. RYAN: Mr. Chairman, I believe Friday, May 8 is an open day. Perhaps the general would consider appearing on that day rather than May 15.

The CHAIRMAN: General, would you be prepared to meet on Friday, May 8 rather than May 15?

Mr. McNAUGHTON: I did accept the invitation offered to me to appear on May 15. I do have a great deal of work to do analysing many of these reports and would prefer to leave the date as arranged.

Mr. HADASZ: Is it necessary that the general appear again?

Mr. McNAUGHTON: I would be delighted to meet the convenience of this committee, but because of the necessary amount of work I must do I would prefer meeting again on May 15.

Mr. BYRNE: I move we adjourn.

The CHAIRMAN: It may well be that there will not be any compulsion to ask the general to appear again. I believe that the minutes will indicate that our questioning had concluded. I was not in the chair at that time and therefore am not sure of the situation. In any event, this will have to be taken up by the steering committee.

I should like to thank the members of this committee for the great patience they have shown, and to thank Mr. Higgins for his kindness and courtesy in appearing here today.

Mr. RYAN: Mr. Chairman, are we now adjourning until 9 o'clock Friday morning?

The CHAIRMAN: We will now adjourn until 9 o'clock on Friday morning.

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HOUSE OF COMMONS
Second Session—Twenty-sixth Parliament
1964

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ON

EXTERNAL AFFAIRS

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MINUTES OF PROCEEDINGS AND EVIDENCE

No. 17

MONDAY, MAY 1, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

S. Jackson, President, United Electrical, Radio and Machine Workers
of America, District Five Council, Toronto.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

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Chatterton,	Kindt,	Pugh,
Davis,	Klein,	Ryan,
Deachman,	Langlois,	Stewart,
Dinsdale,	Laprise,	Turner,
Fairweather,	Leboe,	Willoughby—35.

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

FRIDAY, May 1, 1964

(31)

The Standing Committee on External Affairs met at 9.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Mrs. Casselman and Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Deachman, Herridge, Leboe, Macdonald, Matheson, Patterson, Stewart, Turner, Willoughby—(14).

In attendance: Representing the *United Electrical, Radio and Machine Workers of America, District 5 Council, Toronto:* C. S. Jackson, President; Eric Adams, Consultant; John Ball, John Salfi and Art Jenkyn, Executive Board Members.

The Chairman reported that correspondence has been received from Mrs. Ruth Turner, Edmunds Club, Communist Party of Canada, South Burnaby, British Columbia; Local 444, U.A.W., Windsor; Columbia River for Canada Committee, Vancouver; Rosemary C. Gibbs, Secretary to Professor A. Casagrande. Later he reported correspondence received from the Hon. W. S. Lloyd, Regina, and G. E. Crippen, President of G. E. Crippen and Associates Limited, Vancouver.

The Chairman introduced the witnesses and asked Mr. Jackson to summarize the brief which had been previously distributed to the committee.

Mr. Jackson summarized his Union's opposition to the Columbia River Treaty and Protocol, and was questioned.

The Chairman thanked the witnesses for bringing their views to the attention of the committee.

At 10.10 a.m. the committee adjourned until 4.00 p.m., Monday, May 4, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

FRIDAY, May 1, 1964

The CHAIRMAN: Gentlemen, I see a quorum.

I beg to report that since the last meeting we have received correspondence from the following: Mrs. Ruth Turner, Edmonds Club, Communist party of Canada, South Burnaby, British Columbia; Local 444, United Auto Workers, Windsor; Columbia River for Canada Committee, Vancouver, British Columbia. We have also received a letter from Miss Rosemary Gibbs, Secretary to Professor A. Casagrande.

This morning our witness is Mr. C. S. Jackson, President of the United Electrical Radio and Machine Workers of America, District 5 Council, Toronto. He will have available four people to answer questions: Mr. John Ball, Mr. John Salfi, Mr. Art Jenkyn, and also Mr. Eric Adams, who is a consultant. The first three gentlemen I mentioned are executive board members.

I am advised that all members of the committee have received the brief and have had it in their hands for a period of four days.

Mr. Jackson, it is our custom to have each member of the committee read and familiarize himself with the brief submitted. I would therefore ask you, on behalf of the United Electrical, Radio and Machine Workers of America, to succinctly summarize what it is that you are putting forward in your brief. The meeting then will be open for questions.

It is also our practice in these proceedings to have the witness identify himself at more length than I am able to do on his behalf.

Mr. C. S. JACKSON (*President, United Electrical, Radio and Machine Workers of America, District 5 Council*): We are the representatives of a trade union, the United Electrical, Radio and Machine Workers of America, having a membership in the main manufacturing plants in the electrical industry in Canada. Our membership, by and large, is located in the province of Ontario. We represent workers of Canadian General Electric, Canadian Westinghouse Company, Ferranti Electric and so on.

Our concern, of course, in the Columbia stems from two bases. As Canadians, we are concerned about the future of our country, and the preservation of our resources for that potential development. As working people, we are concerned about the question of employment and, as representatives of workers in the electrical manufacturing industry, we are quite concerned about the whole question of the development of power, and not only in terms of the fact that we produce the equipment for generation, for transmission and for the ultimate consumer use of electrical energy.

We are no strangers to these halls in Ottawa. In the 28 years we have been operating as an industrial union in Canada, we have made many representations to the governments in Ottawa. Most of them have had the one common key of concern for the development of our nation and for the well-being of the people. We have addressed ourselves to the government on the questions of energy and of the development of industry, and we have raised our voice from time to time against what we considered was an erosion of the rights of Canadians by reason of foreign control and domination of industry and of our resources.

This is our second appearance in Ottawa on the question of the Columbia river. We appeared before the government and before caucuses of the various parties just about one year ago, at which time we made our representations calling for the non-ratification of the treaty and supporting the McNaughton plan, and made our voice heard in requesting that this matter come before the external affairs committee, before which committee we are now appearing.

We backed up that representation by some 10,000 petitions that have been signed in several of the main cities of Ontario where our membership reside. Our organization has taken the responsibility of publicizing two series of advertisements on this question—one about a year ago and another one just a matter of two months ago in the main dailies in the cities of Toronto, Hamilton, Peterborough, Niagara Falls, Welland, London, Kingston and a few others. We are extremely gratified with the response we received, particularly in the first round in which we had a petition cut out and attached to the advertisement. It is evident that there is current among the people of Ontario in particular considerable concern over the wasting away or giving away of the priceless resources and assets of this country.

It is in that vein, if you will, that we are appearing here today to argue on behalf of the Canadian people, on behalf of the working people we represent, to ensure that we do not lose either the present or the future value of these priceless resources which, in our opinion, provide the basis for Canada to become one of the industrial giants of the world.

We live in an age of advancing technology and automation, and if we apply those tools to the resources of this nation there is nothing that can prevent this country from moving ahead to become the front line nation of the world in industrial development, provided we have not in the meantime given away the essential resources on which we will have to build.

In looking at the Columbia development itself, while we are not technical experts, we certainly have spent considerable time in reading the testimony of experts and are quite persuaded that there is considerable substance in the arguments of those who oppose the treaty and the protocol. We would hope that the committee will do more than study the treaty and protocol, and include recommendations, because we are here recommending a course of action contrary to what would appear to be the position of the government at this time. We have looked at the question of water as well as the question of power while studying the treaty and the protocol, and we conclude, along with General McNaughton, Mr. Higgins and others, that the treaty and the protocol are designed to benefit and will benefit the United States at the expense of the Canadian people.

With regard to the question of location of reservoirs and storage areas, we are quite persuaded by the argument presented before this committee—which we have had an opportunity to read—that the placement of these dams provides little in the way of protection or future benefits for Canada but provides substantial benefits to the United States. We are quite impressed with the historical background that Mr. Higgins, for instance, gave of the desire of the United States interests to head off any future diversions which Canada might find in its interests via the Fraser or on to the prairies.

We have noticed, not only in connection with the Columbia river but in many other connections, that the interests of the United States are quite capable of looking after themselves, very often at the expense of other nations with which they do business. We have noted the examples given in testimony before this committee of the Pend Oreille and the Waneta projects. We were reminded of a development in the United States for which there was a treaty agreement between the United States and Mexico in connection with the Colorado river whereby the United States agreed by treaty to deliver certain

quantities of water from the Colorado to the agricultural lands in southern California. When it suited the purposes of the United States, in the interests of preserving fresh water for themselves, they uncovered an underground salt water lake; they pumped the salt water out of the lake into the Colorado river and diverted the Colorado river fresh water into the caverns that were evacuated, then they delivered salt water instead of fresh water to the agricultural lands in Mexico. They were able to do this because the treaty did not stipulate that it had to continue to be fresh water that was coming downstream from the Colorado. This is only one of many instances that we have seen of countries entering into treaties of this kind needing to be extremely careful that the commitments that are made are fully set out and spelled out so there is full protection of the interests of each of the countries. It is necessary in particular for us, if there has to be a treaty, to set out and spell out fully and completely every aspect of our rights, not only present but future.

We see the Columbia as one of many water sources and power sources in this country. Our concern is not only the Columbia; we look with equal concern on the Hamilton river projects and on potential projects in the Yukon, and we see all of these as great sources for power to be tied together in a cross country grid so that power can be shifted from one section to another to meet needs, to meet peaks, to meet firm loads when necessary, and in this way to enhance the development of our nation.

Some people will argue that this is not economical. The same arguments were used when the question of building a transcontinental railway was of vital concern to Canada as a nation. We see, therefore, that what is contained in the treaty proposals would negate the potentiality for the development of this national grid.

It is on the economic prospects that we base our main position. We made a submission in a brief to the royal commission on Canada's economic prospects in 1955, and I would like to quote from that, a quotation which is included in our brief on page 5. We said then:

Our country is certainly among the most favoured in the world in its power potential, with its vast hydro electric power resources, its rich uranium resources for this new era of atomic energy, its oil, its natural gas, and its coal. Properly developed and used, these rich power potentials can bring Canada to first rank among the nations of the world in industry and in living standards for its people. But we believe that the full benefit of these rich resources can be secured only through a bold national programme, for which the basic responsibility must be undertaken by governments, primarily the federal government.

We emphasize the need for a long-term national plan for power expansion in all fields—water power, atomic power, oil, natural gas, and coal designed to create maximum job opportunities for Canadians...

Canadian power resources should be developed under Canadian control in the interests of Canadians, and as far as possible by Canadians and Canadian capital... Under no circumstances, we believe, should Canada's sovereign rights to its own power resources be sacrificed by making short-sighted deals with the United States Government or United States private investors. Such deals may promise temporary returns in money, or even in power, but in the long run, Canada would lose by alienating its own power rights, at least as much and, we believe, even more, than it does by exporting its valuable mineral resources. Once gone, neither can be replaced, and a valuable resource that could have provided the basis for Canadian industrialization will be lost forever. In our view, Canada's own opportunities for development are so great that we will be able to use, and will need, all our potential power within Canada.

I remind you that that was written and presented to the government in 1955. Therefore, we come to our position on the Columbia as a result of a policy which we erected and to which we have adhered over many years. Many of these formulations apply very pertinently to the Columbia deal. It is because we see the Columbia deal being the opposite of this direction of Canada for Canadians and Canadian industrial development that we are here today.

We have also made representations to the government on the whole question of energy policy. When it comes to the technicalities of the Columbia treaty, the question of values for power downstream, the water storage and various sections as proposed, we do not profess to be able to stand up to the technical people, to the engineers, although we have some minor qualifications in that regard. However, we do not consider that these are the essentials of the treaty. On the contrary, we are rather inclined to consider that much of the argument presented about the question of the technicalities of the acre foot storage, of the number of kilowatt hours that are capable of being produced in this and that and the other section, all lead us to the conclusion that there is far too much emphasis on these minor aspects of the question and not sufficient on the major question, which is the alienation of our vital resources; and it is not necessary, either, as a good neighbour, as we point out later.

We have taken the position that it is quite possible for Canada as a good neighbour to provide the flood control that is necessary in the lower Columbia and at the same time to preserve for Canada the use of the waters of the Columbia system, including the Kootenay for power development, for diversion in the future into the Fraser or onto the prairies as the case may be, when the conditions of each of those are properly met or required, and in the case of the Fraser the fishing problem is properly solved. We see round the Columbia basin and the waters of the Columbia the tremendous potential to make British Columbia, for instance, an outstanding industrial province in this country.

Essentially, we are concerned about jobs as well as Canada's sovereignty, and we propose that Canada on its own should build the storage dam at Mica and should, as and when needed, develop the power at source and thereby give to the United States its flood control without cost.

We believe that the United States will have to deal with Canada resulting from that development in terms of power, and therefore that the question of selling power now, selling our future power rights, for present day cash is a rather short sighted way to look at the question, in our opinion, and that the value of storage at Mica, the power developed there, will be enhanced by the passage of time, and that our bargaining position will be stronger, as time goes on, if we create this development on our own. We believe the finances are available in this country.

We believe that the Canadian people would willingly undertake the financing of these projects if the facts were put before them, as to the great potential and value to them across the country of the Columbia basin development. We do not think that a treaty is required. We think we should proceed on our own to build the dams, give the United States, as an incidental, their flood controls which will arise from the Mica dam, and build the development for a firm power source in Canada.

This, essentially, is the position which our union has taken and which brings us here before this gathering today. We are quite willing to attempt to answer any questions that members of the committee may care to put to us.

The CHAIRMAN: Thank you, Mr. Jackson. Now, Mr. Herridge.

Mr. HERRIDGE: Mr. Jackson, I was very interested in your concluding remarks when you mentioned your position in respect of the building of the Mica dam first. Would you elaborate to some extent on why you suggested it, rather than our making any agreement with respect to the present treaty?

Mr. JACKSON: Well, we are quite convinced by the argument of experts, that in order to get the maximum development of water, you should have storage at high altitudes, and we have thought that in the case of the Columbia basin, both prior to the Kootenay diversion and following the Kootenay diversion, the maximum storage area there would seem to provide the best storage for the production of the greatest amount of firm power. Then, if additional water or power were required, diversion of the Kootenay would be the next possibility, and not necessarily one required at the moment. But from the standpoint of the future, whether it be for additional power at Mica or for diversion to the prairies, or for diversion to the Fraser, the additional storage capacity at the Dorr dam, in our opinion, adds to the weight and strength of Mica.

Mr. HERRIDGE: You also have given some consideration to the question. Do you believe that by accepting your suggestion the arguing position in the future would be diminished in any way?

Mr. JACKSON: We do not think so. The needs of the United States at the moment, the ones on which they lay the greatest stress at the present time, are for flood control. Now, in our opinion flood control is established for the United States once you have a dam at Mica. If we are going to produce firm power at Mica there would be controlled flow, which would be well below flood level, and therefore the United States in that respect receives flood control and receives the water for its own use and development as downstream benefits which we think can be made profitable to Canada. We do not see that a treaty as such is necessary. It could be a deal between corporate entities, Canadian and American.

Mr. HERRIDGE: You say then we have retained our bargaining position for the future by building Mica, and accepting your suggestion?

Mr. JACKSON: Even more important, we think, we have retained our sovereignty and control over very valuable resources; and incidentally, with that, we have retained our bargaining position at Mica.

Mr. HERRIDGE: On page 3 of your brief, in the opening paragraph, you say:

1. At the outset we wish to emphasize in the strongest possible manner that the only safe approach to a treaty of this kind is to take a long view—

I stress the words "long view".

—and not to concentrate on apparent short-term advantages.

Mr. JACKSON: To take the positive side, the long view must be for Canada to create industry wherever possible. Industry is dependent upon power, and Canada's basic orientation has been towards the extraction and processing of primary materials. We see the future of Canada more in terms of the development of secondary industry for which power is quite essential. Therefore, looking ahead to the need for power, and for water, which is becoming an ever scarcer commodity in this world today, it dictates that we look a long way ahead and do not alienate any of these sources.

If we understand the experts, if a dam were to be put at Arrow, and if Arrow were to be the storage resource, then this in itself would work against any future diversion, for instance, into the Fraser, and it would have a negative effect also in terms of diversion to the prairies.

Therefore, in our opinion, we would be gaining a few dollars now for a great loss in the future, a loss of vast industrial potential, which is of great importance to us as Canadian people.

Mr. HERRIDGE: On page 4 of your brief, in paragraph 3, you say:

5. Energy development is not an end in itself; it is a means to industrialization and economic development. The long-run value of Columbia power must be assessed in terms of industrial development in the area directly served and in Canada generally—both of potential development in Canada and of possible development foregone through use of the power in the United States.

Could you give us some further explanation of that very interesting paragraph?

Mr. JACKSON: Yes. We have set up the means of power development south of the border by the storage essential for the use of the United States. Thus we have created industrialization south of the border which should have taken place north of the border. Once it is developed there, there is not the same demand to meet, and there is not the same incentive to develop industrialization of that area north of the border, nor are there the means of doing so.

We look at the whole question and complex of the rivers in British Columbia as a source of power for the use not only of Canada but particularly of British Columbia, not only as a source of power but also as a source of water for meeting the needs of the human race for water for industrial purposes, for agricultural purposes, and for consumption.

There are two sides to the question: energy potential, and the water itself. Both of them are necessary for the expansion of this country.

Mr. HERRIDGE: Would you please turn to page 12 of your brief, and to the second paragraph which reads as follows:

The financial mumbo-jumbo of the government background paper, table 1, is designed to create the impression that the United States more than recompenses Canada for the cost of the dams. Nothing could be more misleading. Canada sells power for a thirty-year period in the future and gets paid now—presumably an exchange of value for value. We can use the money to build dams if we wish. But it cannot be implied that the United States foots the bill for the dams unless it is made clear this means no pay for 30-years' power deliveries.

Would you mind particularly dealing with that last sentence?

Mr. JACKSON: Where the mumbo-jumbo relates is to the fact that we are being given for the sake of present day dollars future values, future dollars, to try to make the future look much nicer than it really is.

What we are getting is money for our downstream benefits, power developments. The fact that we use it for the dams does not mean that the United States people have paid for the dams. We have only discounted, if you will, the future value of the downstream benefit and received it now in the form of cash. However, the impression has been created that the United States, out of the goodness of its heart, is going to build dams for Canada, and that there is great potential value for Canada with the dams the Americans are going to build for us; the contrary is the fact.

Mr. HERRIDGE: Mr. Jackson, would you turn to page 16 of your brief. I read:

We have no desire to play dog-in-the-manger as far as the Columbia is concerned; but we do insist that such potential industrial development is exactly what should be uppermost in Canada's plans for the Columbia. Under the treaty, however, we encourage this development to take place in the United States. To the extent a given development takes place south of the border, it will have been lost to Canada.

Would you elaborate on that statement, particularly where you make reference to the insistence that such potential industrial development is exactly what should be uppermost in Canada's plans for the Columbia?

Mr. JACKSON: Under the treaty plan as we read it, all of the benefits of power development and flood control accrue to the United States interests. Undoubtedly if the treaty goes through, there will be a tremendous industrial expansion in the Columbia basin south of the border which would work against the interests of Canada or Canadian industrial developments north of the border. Further, there are indications—statements in fact—that the United States has plans to pipe not only power but power and water from the Columbia basin to enhance the agricultural potential of southern California. We say, fine, let them have all those rights, but let us first make sure we are in control at our end, the head waters; that is, that we control the dams and the storage and develop them for our use.

As I understand it, Canada's needs are for firm power development and the United States' needs at the present time essentially are for peak power. If we are developing Mica as a power development, there will be some power production which will ensure a constant flow which will be adequate for flood control south of the border; the United States still will have the water. They can develop this water in whatever way they wish; they can use it for irrigation or anything else. That is their right. However, when we are called upon to provide the storage facilities to enhance all of that in the United States, we certainly are receiving nothing of any value in return. We are not receiving value for the enhanced real estate in the United States that will develop as a result of flood control; we are not receiving anything in return for the greater control or ability to provide water for irrigation and other consumptive purposes in the United States. As we see it, the whole deal is a one-way street and, to use, unfortunately follows this well established pattern of giveaways in this country.

We made similar, although not identical, arguments in respect of the St. Lawrence seaway development. We took the stand that this was a waterway which Canada had a right to establish under its own control, only to see Canadian money used in greater amounts than the American money to build the canal system on the St. Lawrence under United States control.

We see this whole Columbia development as just another example of a policy of appeasement of United States demands and United States interests, and a sell out of the birthright of our country. One of the reasons why we have one of the highest unemployment rates of any country in the world today is this type of policy which consistently we have had over the 20 years of our existence. And again in the Columbia we see one of the more blatant, if you will, giveaways to meet United States demands at the expense of Canada's present and future developments.

Mr. HERRIDGE: Now, Mr. Jackson, would you turn to page 17 of your brief to the section entitled what United States gets under the treaty:

The benefits accruing to the United States include:

1. removal of flood hazard and enhanced property values in the lower Columbia basin, the latter in particular estimated to be worth billions of dollars.

I have seen that statement on a number of occasions in various periodicals and articles. Where do you think that the major increase in real estate values will occur on the Columbia in the United States?

Mr. JACKSON: I would say in the lower reaches of the Columbia where at the present time they are subject to variations in water levels and where the land cannot be developed or used for residential or industrial purposes, but where under conditions of flood control there will be the possibility of development both for residential and industrial purposes.

Mr. HERRIDGE: Then you say:

2. regulated supply of fresh water for industrial, irrigation and consumptive use, estimated to be worth several hundred millions.

To what particular industrial use would this water be put and what particular consumptive use?

Mr. JACKSON: I believe there were some figures presented in the resources for tomorrow report. These were figures in respect of the amount of water used in various types of industries, and an accelerated figure of the essential aspect of water in most industrial processes today, particularly in the conversion of raw materials into primary industries. Aluminum is one. The water, of course, is energy, and aluminum is congealed energy essentially.

Mr. HERRIDGE: These industries use large quantities of water?

Mr. JACKSON: Yes; large quantities of water and large quantities of power, both of which have the same source, water and its control.

Mr. HERRIDGE: Would you turn to page 20, the second paragraph, which reads:

Professor John H. Dales goes further. In his book "Hydro-electricity and Industrial Development—Quebec 1898-1940" he wrote:

'—hydroelectric development has been a powerful agent in the promotion of a twentieth century industrial revolution in Canada—an agent, that is to say, in the transition from an economy based on the exploitation and exportation of a few natural resources to an economy which is more diversified—'

These are the words in which I am interested.

'—which depends to a larger extent on manufacturing industry, and which is more self-reliant—'

Would you expand on that last sentence?

Mr. JACKSON: Well, essentially, if we are looking at the employment content of manufacturing, we find that the highest employment content is in what we call secondary manufacturing and not in the primary industries which are merely working on the raw materials. If Canada is to become a vast industrial nation, then it will only do so on the basis of development of secondary industry which has the employment content. As we see it, this is the weakness in the development of our economy.

Mr. HERRIDGE: Then, would you turn to page 22, the second paragraph, where you say:

In this connection, we should like to direct the attention of the committee to the UE resolution on "Conservation and Development of Canadian Power and Material Resources".

We have the resolutions attached to the brief. However, this is a very interesting resolution brought by an organization which, I understand, represents some 20,000 working people.

Mr. JACKSON: Yes.

Mr. HERRIDGE: Would you please elaborate, at least to some extent, on resolutions 1, 2, 3 and 4.

Mr. JACKSON: Well, at the risk of repeating myself, I will do so.

The CHAIRMAN: Hear, hear. Gentlemen, there is a danger that some of these questions are not questions at all but invitations to speeches. Now, it is not my intention to cut you short or to prevent any other members from putting questions in these hearings, but I do not think it is proper to ask questions of such a general character which invite discursive comment on a matter which has been dealt with adequately in the brief.

Mr. HERRIDGE: Mr. Chairman, I have read this brief and I do not agree with you in this respect. I have mentioned certain paragraphs and I would like to have Mr. Jackson's thought behind the content of these paragraphs.

The CHAIRMAN: Carry on, Mr. Herridge.

Mr. JACKSON: Well, these particular resolutions which are attached summarize the position which our union has taken in respect of the development of industry in Canada. We think at this stage in particular there should be a concentration on the development of secondary industry to relieve the tremendous import content of the sale of goods in this country. A very substantial portion of the goods which are sold, particularly in the electrical industry, is imported either in finished or semifinished form, which runs as high as 40 per cent. These commodities could be manufactured in Canada where we have the skills and all the requisites in terms of material and so on. This would provide a tremendous impetus.

Likewise, we feel the continued export of the raw material or semifinished materials of this country are also depleting the reserves and the potential which would be required if we are to develop a broad industrial nation in this country based on manufacturing through to the finished product.

We see the construction of an east-west grid as tying in the many power resources of this country, many of which are untapped to date, and which in their present location would be difficult to tap and utilize unless they were tied in so that the power could be transferred from site east or west where industrial development could and should take place.

We are concerned about the fact there is an increasing orientation in power transmission north and south rather than east and west in the eastern extremities. There have been discussions of the development of Hamilton river power to be piped or transmitted south to be utilized for the eastern section of the United States; the Manitoba pool, which is contemplated to bring the power from the northern regions of Canada straight south into the United States and in the middle west, and discussions in the United States in respect of the west coast of transmission of power north and south between the United States and Canada. If any one of these three developments take place, then they will prevent, for all time, in our opinion, the development which we, as a nation need, namely the east-west transmission of power rather than north and south.

In respect of the provision of capital, we have stated we do not think this country is lacking in that respect; in fact, we have had one or two interesting letters in reply to our advertisements on the Columbia, where we emphasized the Canadian aspect of which people wrote. They said they themselves would be happy to subscribe through savings bonds or any other government media for the financing of these projects if they could be assured they would be Canadian and used for Canadian development.

These are the essentials of the policy which this union has hammered out and for which it has fought down through the years, and continues to do so.

Mr. HERRIDGE: I have just two more questions and then I will give the opportunity to other members to put questions.

I refer you to page 30 and to the section headed "give U.S. flood protection free", which reads as follows:

The 12 million acre feet of storage at Mica is more than sufficient to regulate Columbia flows so as to avoid any excess over 800,000 c.f.s. at the Dalles, the originally desired level of flood control in the United States.

Now, here is the interesting sentence.

We should offer this element of control to our neighbours in time of need at no charge whatever.

That is a very interesting statement and I would like you to tell the committee what is the thinking behind that proposal.

Mr. JACKSON: Essentially, that is to avoid any treaty entanglements. Once you enter into treaties there is a certain amount of compromise on both sides and we do not think it is necessary. We think Canada is in a strong position in this regard, that she is in a good bargaining position and is not compelled to compromise. There is no great advantage to Canada to enter into treaties on this question of water and power across the border. We say that Canada must be left in full control, as I have stated earlier, but we have no objections to the benefits which may accrue to the United States in terms of the use of the water and flood control which arises out of the development over which we have control and out of which we extract the maximum value.

Mr. HERRIDGE: My last question, Mr. Jackson, is in reference to page 32 where you have a paragraph entitled "financing the projects". You made a brief reference to this a few moments ago, but I would like to quote the following:

There is no doubt in our mind that it is entirely feasible to raise funds of the order of magnitude contemplated in these projects by selling government bonds in small denominations to the Canadian people.

As a matter of fact, members of our party have advocated this procedure for years in respect of public developments in Canada. In view of the fact that we hope soon to have a Canada pension plan—and, we are still optimistic in that respect—do you not think it is possible for governments to use their reserves in respect of pension plans for the building of public utilities in the same way as private insurance companies do when they invest their money when it is to their own advantage?

Mr. JACKSON: In respect of the last part of your question I am not so sure we would agree with the taxation in respect of pension plans which also have embodied in them a savings plan whereby if the government needs money for investment or national development—

The CHAIRMAN: If I may interrupt, Mr. Herridge, are you inviting a discussion of the Canada pension plan?

Mr. HERRIDGE: No, no, Mr. Chairman; you are so suspicious of me.

The CHAIRMAN: No, I am not.

Mr. HERRIDGE: This is an interesting paragraph dealing with financing the projects and I was interested in the suggestion about selling bonds of small denominations, which Mr. Jackson mentioned and which we in our party on numerous occasions have suggested, I refer to the mobilizing of the small savings of the Canadian people for the public interest. I was very interested in this and that is the reason I wanted to get Mr. Jackson's reaction. As you know, this matter has been discussed in the house; there will be reserves under any scheme, whether it is workmens' compensation or pension funds. There have to be some reserves and do you not think if there are any reserves, which are necessary to make any scheme sound, they could be used for the development of public utilities in Canada?

Mr. JACKSON: We suggest there are many sources of acquiring finances and we point to the \$1,600 million annual expenditures in respect of defence which in our opinion is not required for a country of this kind and location. Secondly, we point to the experience of Canada in two wars of floating savings and victory bonds. At the present moment there are some \$4,600 million outstanding in Canadian savings bonds of which we think many could be sold

to Canadian people if the sale was tied in with developments of this nature. We feel this would enhance the sovereignty and independence of our nation.

Mr. HERRIDGE: I see a smile on your face, Mr. Chairman. That is my last question at this time.

The CHAIRMAN: If you have further questions you may continue.

Mr. HERRIDGE: I should like to give another member of the committee an opportunity at this time.

The CHAIRMAN: Mr. Cameron, have you any questions?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No.

The CHAIRMAN: Are there any other questions?

There being no further questions, gentlemen, I should like to report that I have received two letters which I shall bring to the attention of the steering committee. I received these letters since the meeting convened. One letter is from Mr. W. S. Lloyd, from the premier's office, Regina, and the second from Mr. G. E. Crippen of G. E. Crippen and Associates Limited.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, are you going to indicate the contents of those letters?

Mr. PATTERSON: That has not been the practice followed.

The CHAIRMAN: We have not followed that practice to date. I might state that if any member wishes to read correspondence which has been received that member may do so by getting in touch with Miss Ballantine who has this file.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I am very anxious to know what the situation is in regard to the Saskatchewan representation but I will see Miss Ballantine and read that letter.

The CHAIRMAN: On Monday, May 4, we will have the privilege of hearing from the International Union of Mine Mill and Smelter Workers of Toronto. Our hearing is scheduled for 4 o'clock in the afternoon.

I should like to thank the members of this committee and you, Mr. Jackson, and your representatives.

Mr. HERRIDGE: Mr. Chairman, I should like to make one observation before the meeting is adjourned.

I am disappointed that there is only an attendance of 11 members of this committee at this meeting to hear the representatives of 20,000 workers who are contributing in a great way to the wealth of this country. On the other hand when we hear from some experts from the United States we have a crowd in attendance. I think this is a poor reflection of the attitude of the members of this committee and the opinion of this important force in Canada.

The CHAIRMAN: Mr. Herridge, I think it is only fair to the members of this committee to indicate to these distinguished gentlemen who have been good enough to come here today that our attendance today is about equal to that of the past several meetings. As you understand, we have a number of committees meeting simultaneously. I do not know what committees are meeting today, but certainly this committee has had more members in attendance who have listened very attentively, particularly today, than other committees in the past.

Of course, I must say that we do appreciate your very kind co-operation in making this material available to us as we requested, well in advance, so that the members were able to study it carefully. Thank you.

HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 18

MONDAY, MAY 4, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESSES:

Representing the International Union of Mine, Mill and Smelter Workers (Canada): Mr. Bruce Yorke, Consultant; Mr. William Kennedy, National Executive Board Member.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

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Brewin,	Fleming (<i>Okanagan-</i>	Macdonald,
Byrne,	<i>Revelstoke</i>),	MacEwan,
Cadieux (<i>Terrebonne</i>),	Forest,	Martineau,
Cameron (<i>Nanaimo-</i>	Gelber,	Nielsen,
<i>Cowichan-The Islands</i>),	Groos,	Patterson,
Cashin,	Haidasz,	Pennell,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

MONDAY, May 4, 1964

(32)

The Standing Committee on External Affairs met at 4.00 p.m. this date, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Gelber, Haidasz, Herridge, Kindt, Leboe, MacEwan, Matheson, Nesbitt, Patterson, Ryan, Willoughby—18.

In attendance: Representing the International Union of Mine, Mill and Smelter Workers (Canada): Mr. Bruce Yorke, Consultant; Mr. William Kennedy, National Executive Board Member.

The Chairman reported that correspondence has been received from the East Kootenay Wildlife Association, Canal Flats, B.C.; R. Deane, Rossland, B.C.; and Larratt Higgins, Toronto.

The committee resumed consideration of the Columbia River Treaty and Protocol.

The Chairman introduced Mr. Kennedy, who, in turn, introduced Mr. Yorke.

Mr. Yorke outlined his educational background and qualifications and summarized the Union's opposition to the Columbia River Treaty and Protocol, referring to a map during his presentation.

At 6.00 p.m. the committee adjourned until 8.00 p.m. this day, on motion of Mr. Herridge.

EVENING SITTING

(33)

The Committee reconvened at 8.00 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Davis, Deachman, Haidasz, Herridge, Kindt, Leboe, Matheson, Nesbitt, Patterson, Ryan, Willoughby—14.

In attendance: The same as at the morning sitting.

Mr. Yorke showed slides of the Columbia, Kootenay and Arrow valleys. He was questioned and was assisted in answering by Mr. Kennedy.

The Chairman, on behalf of the committee, thanked the witnesses for their presentation and Mr. Kennedy thanked the Chairman for the committee's reception of their brief.

At 9.10 p.m. the committee adjourned until 10.00 a.m., Tuesday, May 5, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

MONDAY, May 4, 1964.

The CHAIRMAN: Gentlemen, I see a quorum. I beg to report since our last meeting that there has been correspondence received from the East Kootenay Wildlife Association of Canal Flats, British Columbia, a letter from R. Deane of Rossland, British Columbia and a letter from Mr. Larratt Higgins of Toronto.

Mr. HERRIDGE: Who signed the letter from East Kootenay?

The CHAIRMAN: Mr. Herridge, I do not know; perhaps you could tell us.

Mr. HERRIDGE: I wondered if it was from a Mr. Paish?

The CHAIRMAN: I think that is correct. I am sorry we do not have the letter with us.

It is our pleasure today to hear a brief summary of a brief, which has been in your hands, presented by the International Union of Mine, Mill and Smelter Workers of Canada. This summary will be presented to us by Mr. Bruce Yorke who is a consultant to the International Union of Mine, Mill and Smelter Workers of Canada and a graduate in economics from the university of British Columbia. He will be introduced by Mr. William Kennedy, who is the national executive board member of the International Union of Mine, Mill and Smelter Workers of Canada. I will call on Mr. Kennedy.

Mr. WILLIAM KENNEDY (*Member of the National Executive Board, International Union of Mine, Mill and Smelter Workers of Canada*): Mr. Chairman and members of the committee, I am here on behalf of the membership of our union which extends from the maritimes on the east coast of Canada to the far west coast of Canada. We certainly appreciate the opportunity of appearing before this committee to put forward the views of our organization which have been discussed in conventions, on a national basis and on a district basis. Many of the members whom we represent live in the Kootenay district, the district where the projects being discussed here are located. I want to assure you, Mr. Chairman and members of the committee that our interest in the matter is very great. We have made a considerable study of the matters in question and as you, Mr. Chairman, have outlined, we have obtained the services of Mr. Yorke to make the official presentation of our brief. The position we have taken in the brief is supported by many individuals and organizations in the province of British Columbia. The plan we support, which is known as the McNaughton plan, was unanimously supported by the New Democratic party in British Columbia, and I would just like to read to you the resolution which was adopted by that convention in 1961.

Our cheapest source of power must be developed first. Available statistics suggest that this can be developed on the Columbia river. The New Democratic Party favours the McNaughton plan which would eliminate the High Arrow dam project and the flooding of thousands of acres of valuable British Columbia land. This low cost power must be used in British Columbia to create new industries and the thousands of new jobs which are required to expand our industrial production rapidly and to end mass unemployment in our province.

No firm or long term contracts should be made for the export of power or sale of downstream benefits from British Columbia.

I also understand that a similar position was taken by the national convention of the N.D.P. in Regina last year. Support for the plan has also been given by the Vancouver labour council and by many other organizations and individuals which I do not wish to enumerate in detail at this time.

I want to conclude my remarks by saying that the brief which Mr. York will deal with will support very greatly the proposals and the plan of General McNaughton, and certainly we believe that the plan proposed by him is one which has the support of a large number of Canadians. His unquestioned integrity and his feeling for Canada and Canadians I believe make it such that the Canadian people generally speaking are in favour of the plan which we support in our brief.

I want at this time to introduce Mr. Yorke who will deal with the brief.

Mr. BRUCE YORKE (*Consultant to the International Union of Mine, Mill and Smelter Workers of Canada*): Mr. Chairman, members of the committee, I would prefer to stand because I will be going to the map and I also have some slides that I would like to show.

Before beginning I would like to say that I am not an engineer but I have had considerable academic training in economics, as was mentioned. I also attended the university of Washington and the Massachusetts Institute of Technology. I have had considerable experience in using computers, and I have had many conversations with technical people. If you have technical questions to ask me, I may be able to answer them as I think I have the general understanding in connection with them to the extent that the brief is documented by a certain amount of technical knowledge. However, I am not an engineer and I want to make that clear.

The CHAIRMAN: Actually, it has been our custom—I leave it to you—to set out specifically where a man has been trained and what degree he has received or what other memberships or fellowships he has received. I invite that, if you would like to give it to us in detail.

Mr. YORKE: There is not very much I can tell you. I graduated in economics from the university of British Columbia in 1945; I had a teaching fellowship in economics at the university of Washington for two years and at the Massachusetts Institute of Technology for one year. That is the extent of my academic training.

The CHAIRMAN: In what degrees specifically?

Mr. YORKE: Just the one degree, bachelor of arts.

The CHAIRMAN: That is bachelor of arts in economics?

Mr. YORKE: Yes.

The union for which I am speaking here today has gone to considerable trouble to prepare this brief, and as you know we have come all the way from Vancouver. We think that we have something special to contribute and we would like to take our time in presenting it. We think we have some new material which has not been presented before, but in order to make our point it is necessary to summarize our brief as we go along because we just cannot make certain statements out of the air; some ground work must be laid for them. In connection with that I brought a map which shows the main areas. It is a bit distorted but it highlights the relationships. We also have some 20 slides or so and we brought these along because we are going to show you some scenes from the two valleys mentioned in this treaty: the Kootenay valley and the Arrow lake valley.

When we prepared this brief the protocol had just more or less come out, and the presentation will first of all be made from the point of view of the main treaty itself. In the end we have an addendum which gives an analysis of the protocol.

I should say at the very start that we feel the treaty is the main thing we will talk to. We feel that where it is modified by the protocol we will also say something about that. Our main concern, as pointed out in the opening pages of our brief, is that in our opinion, based upon the most careful analysis of this treaty we have been able to bring about, it surrenders control of this natural resource to the United States.

We consider this to be the fundamental question, not only control of a temporary nature but also control of a permanent nature, and for this reason this treaty would tie our hands as far as the development of the Columbia is concerned. We urge you very seriously to consider what is in it and to recommend its rejection to the House of Commons because we feel that the question of the surrender of resources of such magnitude to a foreign power certainly will not help the development of our country.

We are not alone in this thought, as you know. There are other very prominent Canadians who have said this. Some of them are present in this room. Others who are not in this room have also said it. I call to your attention, on page 2, the words of the chief Canadian negotiator himself, and the special circumstances in connection with the sale of downstream benefits which is actually the precise form of the treaty today, when Mr. Fulton said that it would be an act of such reckless and improvident philanthropy that it would make us the laughing stock of the world. Those are the very words of the chief Canadian negotiator in the special circumstances which I shall elaborate later on.

Mr. WILLOUGHBY: May I ask when that statement was made?

Mr. YORKE: It was made on November 29, 1961, at Prince George. I will elaborate on it later.

Mr. CHATTERTON: Could you tell us if he was referring to the sale of power or to the treaty.

Mr. YORKE: He was referring to it in terms of the sale of power.

Mr. CHATTERTON: That is not what your brief says.

Mr. YORKE: Well!

The CHAIRMAN: Perhaps you might read the paragraph.

Mr. YORKE: Yes. The paragraph reads as follows:

E. Davie Fulton, the chief Canadian negotiator, described the present form of the draft treaty as "an act of such reckless and improvident philanthropy that it would make us the laughing stock of the world".

I think that is substantially correct. It may not be precisely correct, but I think it is substantially so. May I continue?

Mr. CHAIRMAN: Yes.

Mr. YORKE: I will come to it more precisely later on. Now, in our opinion, in connection with this treaty, as you all know, it is quite a complex treaty, and in order to find your way around in it, it is necessary to know the definition of certain terms, because in many instances the character of the treaty depends upon the definition of certain terms.

In the appendix at the back we have defined some of the main terms. I would like briefly to refer to page 96, where you will find two main terms on the question of power and the question of energy. Power is the capacity or potential for performing work, not the actual process itself. It is the rate at which you can do things, the potential. It is measured in kilowatts, not in kilowatt hours.

On the other hand, energy, which is the actual utilization of power over a definite period of time, is measured in kilowatt hours. Often there is confusion between those two particular terms. We have tried to be as careful as we can in every case and to be precise.

Another term very often used is that of acre foot. For instance, an acre of water one foot in depth, falling a distance of one foot, is equivalent to 1.024 kilowatt hours of electrical energy. Consequently we often say that the amount of energy is the head, the distance the water drops times the volume of water, and roughly speaking this is the case. It is very important because in understanding the intricacies of the treaty there are two factors which have to be taken into consideration; first, the head, the distance that the water drops, and second, the volume of water that is involved.

There are some other definitions in there which I shall not bother you with at this particular time. But this has brought me to the distinction between what is called firm power and prime power. I shall be as careful as I possibly can in utilizing these particular terms.

As far as our understanding of the treaty is concerned, we start out from this fundamental premise that Canada holds about 99 per cent of the bargaining power with regard to Columbia river basin development. We feel that this is an important point to start from. It gives us control of the actual physical conditions that exist on the Columbia river. We are the upstream country except for one small variation. That is the portion where the Kootenay loops into Montana, and except for that, we are the upstream country. And what we do is decisive. Legally we have the sovereign right to do what we wish.

I think from that particular position, from that particular point of view, it places us in a very strong bargaining position, so that we are in a position to maximize the returns as far as we are concerned. I would like to detail that a little bit more. As I have said, the map is a bit out of proportion, but it does not affect anything, and I think it shows the relationship better. I refer to this map.

The Columbia rises in the Rocky mountain trench, and runs north, and then through the Arrow lakes and down into the United States. I am sure that everybody knows by now that this is one of the largest power producing rivers in the world. You will notice that in Canada on the main stem of the Columbia itself there have been no actual developments as yet; no dams have been produced on the main stem of the Columbia in Canada.

In the United States, 13 I think, have been developed. The Columbia starts out at Canal Flats where it is just a small river, and when it gets to Luxor it has about one million feet of water on the average. At Mica it has about 14 million acre feet, and 28 million acre feet at the outlet of the Arrow Lakes. As the river grows it picks up water from its various tributaries. Now then, as I said, the main thing as far as energy is concerned, or rather the two main things are the volume of water and the drop.

It is a fact that in this stretch of the river, from Mica to Revelstoke Canyon, this is where the river falls the sharpest and this is where the possibility is for the biggest head to be developed in Canada. Part of the difficulty however is that up close to the beginning of the watershed there is not enough water there to go with the big head that is there in order to make maximum utilization. On the other hand, from Grand Coulee to the Snake River, in the United States, there are nine dams which have been developed, and there is a very considerable volume of water because by this time a lot of the tributaries have come in, but the heads are not spectacular except in one case, namely, at Grand Coulee; As I am sure all of you know by now, this river has such a tremendous variation in flow that the power producing possibilities of these plants are not always able to be put to use because there is not enough water there. Of course, as we know—and I am sure everyone is familiar with this—what is required is additional water at the right time to even out the flow so that the maximum utilization can be taken care of through these particular plants downstream.

So far as the United States is concerned—and this is the point I was attempting to make—in this stretch of the river from Grand Coulee to the Snake you can see there is a large concentration of power plants; 60 per cent or more of the capacity is in this particular stretch of the river. Of the water that goes into that, 60 per cent of it originates in Canada. Consequently, what we do with that water is a decisive factor in respect of what happens on this stretch of the river. That is why I say the United States is extremely dependent upon what Canada does in connection with the development of the Columbia river.

Now, the United States has another problem. They have a problem in the lower Columbia flood plain.

The CHAIRMAN: Might I interject a word at this point? I do not mean to disturb you, but you understand that everything you say is being transcribed and will be read by certain people. When, as you frequently do, you refer to "from here to here" it means nothing to any student of this material afterwards. If you could refer to Bull river to Calamity curve, for instance, or Downie creek to Arrow dam, or whatever it may be, this would make sense to a reader, but it does not if you say "from here to here".

Mr. YORKE: I will try to remember that.

In this stretch of the river from where the Snake joins to the ocean, you have the maximum amount of water coming through, and this is where the floods occur. I think most of you recall the big 1948 flood in the area around Portland, Oregon, where the town of Vanport was almost completely wiped out. The United States corps of army engineers has the problem of protecting this vital stretch where the main population is in the Columbia river basin. In order to do that they have investigated certain plans.

If you will refer to page 18 you will see a table there of the so-called alternative plans that the United States corps of army engineers has developed basically to solve this flood control problem in the United States, and also to help generate additional power. You can see that a good number of these projects are on this particular tributary here, the Snake, which is a big tributary which comes a way back a thousand miles.

The problem is that when the United States say they will go ahead with an alternative if we do not sign this treaty, it is not a very attractive alternative; in fact, if it were very attractive they would have gone ahead previously, because, true enough, water can be stored along the Snake to prevent the floods in the lower Columbia, but all of that stored water will not be of any use in the major power producing section of the river, upstream from the confluence with the Snake.

Mr. HERRIDGE: From Grand Coulee to the Snake?

Mr. YORKE: Yes. Thank you. Naturally, you do not want to spend a tremendous amount of money in here if you are only going to get, so to speak, half returns. So, the United States has looked for storage upstream from Grand Coulee. That is the point.

Now, it is a fact, for a number of reasons, mainly because of hasty development of the river in the United States which did not take into consideration the need for upstream storage, but concentrated on big power production propositions in a hurry, that there is very little upstream storage left from Grand Coulee anywhere in the Columbia river system, except for two instances.

I should have the Pend Oreille on the map. A tributary, the Pend Oreille upstream from Grand Coulee has on it a big storage project called Knowles, at which it is possible to store about three million acre feet of water. However, there is very strong opposition in the United States to this particular development, and it is not likely to come to fruition. There is one other place namely Libby where seemingly the United States has an alternative, but they are not in

sovereign control of it; Canada is, to this very day. That is this project here, Libby on the Kootenai river in the United States. As you can see it is upstream of Grand Coulee. The water that comes down from Canada eventually finds its way into the Grand Coulee; but this particular project is not under United States control. They have attempted to have the dam built ever since 1950 and it never has been built because to make it sufficiently useful to provide the regulated flow for Grand Coulee, it has to be built to a certain height which floods back 42 miles into Canada.

For that particular reason it is true to say that as of this day this particular dam is not within the sovereign power of the United States to construct. So, for all practical purposes—and this has been pointed out by very responsible persons in the United States, and I think there is a quotation in here from Senator Dill who claims to be the father of the whole Columbia river proposition, and you can look this up in our brief, the only way in which storage and regulated flow can be produced in this particular section of the river, from Grand Coulee to the confluence with the Snake, is to build storage in Canada.

So, if that is true, then that places Canada in a situation, colloquially, where it holds all of the aces. Therefore, it would seem that any agreement we should make with the United States with regard to the development of the Columbia actually should bear this in mind; that is, that we are in the tremendously powerful bargaining position. That does not mean to say we should play dog in the manger in the situation, but it certainly means we should maximize our own benefits.

What actually has happened? I think everybody knows the terms of the treaty provide for the building of a dam here at the lower end of the Arrow lakes, one at Mica at the top end of the basin, and one at Duncan at the top of the Kootenay lake. After having successfully asserted our rights with regard to this ever since 1950, we have the abandonment of it and the authorization for the building of Libby dam in the United States. These reservoirs provide a tremendous volume of water, something in the order of 20 million acre feet, which is far too much to meet the flood control needs down in the Lower Columbia, which are $6\frac{1}{2}$ million acre feet.

It would take a Philadelphia lawyer a month to go through the whole complicated system, from section 4 to the annex, the protocol, back and forth, (a) and (b), all kinds of technicalities but, in actual fact, when you narrow it right down, so far as Canada is concerned the release and the refill of all these waters are so determined, in theory, to maximize the total system benefit; but, because of the dominance of the United States, so far as its development is concerned, the result is to maximize all the United States benefits. Primarily this has to do with a number of factors which I will try at this time to explain. First of all, there is the actual location of the dams themselves. Libby is downstream on the Kootenai in the United States, and the only possibility that we have in making utilization of the water that is behind that is a series of power producing plants which are on the west arm of the Kootenay. You might say there is some in here but these are all little sections.

Mr. HERRIDGE: You mean between the junction of the Kootenay and the international Murphy creek?

Mr. YORKE: Yes. On the West Arm of the Kootenay the drop is something of the order of 426 feet and that is all; but if you consider pushing all the Kootenay water, which we can get by a diversion, back up the Columbia you can put that same water through a head from this Luxor to Murphy Creek, over 1,000 feet. That is the essence, the simplicity if you will, of the proposition to maximize our own power producing possibilities in Canada. As I say, there are many details but that is the essence of it. Instead of piling this water back

up behind Libby and letting it go down the Kootenay why not pile it up in Canada; push it down over this way, over Mica, down into Revelstoke creek and maximize the power production. The point is—and this is not an anti-American proposition in any way, shape or form—because of the fact that all the regulated water from the Kootenay river goes through all the big plants from the Grand Coulee through to the ocean. That is the essence of the proposition. There are many technicalities about it but that is the essence of it. It has been called sequence IXa, sometimes the Dorr diversion, sometimes the McNaughton plan or Canada plan; it goes by all kinds of different terms, but that is the essence of the proposition. The water of the East Kootenay which is quite capable of being stored in Canada, is not just simply a diversion of the Kootenay into the Columbia and, so far as I have seen—and this is a very important point—in reading all the evidence which has been given to date they have omitted the creation in the east Kootenays of an artificial lake which is capable of being emptied at either end; you can empty it this way, if you wish—that is, back up the Columbia—or empty it southward down into the United States. This is a tremendous factor because it gives flexibility to the operation, and there are many technical reasons why there should be flexibility. Furthermore, it stores in Canada 6 million acre feet or something of that order and, if necessary and if required sometime in the future, it can be diverted and pumped up over the Rockies and into the prairies if we so desire to do so in the future. We retain that sovereign right. Furthermore, all of that water could go back up the Columbia. Actually, we could divert it back into the Fraser system in the future, if we wanted to do so. And, in suggesting a strong bargaining position, it seems to us we should retain the sovereign right to do these things if and when in the future it may prove economical for us to do so.

As I say, that is the essence of the situation so far as we are concerned. We feel this river should be developed in such a fashion that it maximizes the potentialities in Canada. And then, if there are benefits to the United States, fine. But, the main thing is to maximize our own development first, and I think that is the responsibility of this parliamentary committee. I think it is their responsibility to make certain that we have maximized our benefits.

Now then, there is a big misconception about this treaty and it is being said that it is a 50-50 proposition. I am not going into all the details so far as the definitions of firm power and all that is concerned but even assuming that part was fair there are three areas in which there is no share of benefits which, in our opinion, are very, very important. And, in another instance, so far as flood control is concerned, the basis of sharing is such that it leaves very much to be desired. At this point I would like permission to read from the brief because I think these are important points which to date have not been made.

Mr. HERRIDGE: What page is that?

Mr. YORKE: Page 33. It is in connection with flood control in the lower Columbia river basin from the Snake river to the ocean. This is from the testimony at the Senate hearings in 1961, where General Itschner, head of the United States army corps of engineers, which knows more about this river than any other organization existing—

Mr. KINDT: Would you give the page number, please.

Mr. YORKE: Page 33. I am reading from the Senate hearings in 1961. The General is asked by Senator Church:

We know that one flood alone in 1948 caused in excess of \$100 millions worth of damage in the northwest; is that not so?

Itschner answers: That is correct, sir! In one flood alone we could very easily receive damages amounting to several times the cost to the United States of getting flood control from Canada in the treaty.

There is the testimony of a man in respect of the benefits of flood control, and he knows as much about it as any other man with the probable exception of General McNaughton. And this is a negative evaluation and has nothing to do with a positive evaluation in respect of the building up of industry by protecting that flooding situation in the lower Columbia regions.

There is another benefit which is not mentioned in this treaty at all, the magnitude of which is tremendous. I am going to read from the brief in this regard because this evidence has not been presented in any way that I have been able to ascertain up to this time.

This evidence appears at page 33 of our presentation and begins as follows:

In June 1958 the United States army corps of engineers, North Pacific division, published a monumental five volume report entitled Water Resources Development Columbia River Basin. This report remains to this day the very best source of information re the Columbia basin and in many ways is the technical background to the draft treaty.

This report is about a foot thick. I have gone through it two or three times even though it costs \$25 to obtain.

To continue from the brief as follows:

It was the intimate knowledge of the basin contained in this report that enabled the Corps' representative during negotiations (the same General Itschner) to write in the various technical clauses, guaranteeing United States control and maximum United States benefits. This is another story to which we will return.

What does this basic report on the Columbia reveal with regard to thermal generation savings? It reveals a scandal, and utterly demolishes the myth of equal sharing of benefits.

Those are strong words but I am going to attempt to prove them at this time. The brief then states:

Before documenting this charge, it is necessary to describe the nature of the United States energy system. In approximately twenty years time the Pacific northwest demand for electricity will be so great that it will not be possible to supply it all from hydro generation. It will be necessary to add thermal plants, burning some sort of fuel, including atomic fuel. For a variety of technical reasons it is most economical that these plants operate at a steady continuous load.

They should not be shut off and on.

Hence, when the United States system reaches the stage of mixed hydro-thermal production, the thermal plants will carry the base loads and the hydro plants will carry the peak loads only. Now if additional hydro can be obtained then it will not be necessary in the future to build additional thermal plants, to make peak loads. This means that it will not be necessary to burn costly fuels. All that will be required will be to release 'free' water from storage. Hence large savings will result from using hydro, provided of course, that the hydro itself is available.

That is what the treaty is all about in this regard.

Then we further state in our presentation as follows:

But now to quote the army corps report. 'The projects added to the base system (sequence VH) to form the major water plan (sequence IV H) reduce the thermal plant required to meet the 1958 load by 4,185,000 k.w. and the thermal energy required by 25,299,000,000 k.w.h. annually.'

'After an allowance is made for the cost of 1,413,000 k.w. of capacity added to projects in the base system and the associated transmission costs, this represents a system thermal saving of \$121,000,000 annually.'

What is sequence VH and IVH, and what does this have to do with the draft treaty? Sequence VH is the technical description for the existing U.S. hydro plant with water storage facilities of 13,262,000 acre feet. Sequence IVH is the technical description for a slightly expanded hydro plant with water storage facilities of 32,189,000 acre feet.

In other words, the main difference in the two sequences is the addition of 19,000,000 acre feet of storage. But this is precisely what the draft Columbia river treaty would provide—15 million acre feet in Canada and another 5 million from Libby (which floods into Canada).

Hence Canada will provide the increase of storage required and the United States will realize annual savings of \$121,000,000 per year.

But is Canada to share any of this \$121,000,000 yearly bonanza? Such a benefit is not even recognized in the draft treaty, and we will receive exactly nothing on this account.

I think this is a very serious matter and certainly explodes the myth that there is to be equal sharing of benefits.

That is not the only thing which is not shared as far as this treaty is concerned. I should like to deal with the question of water itself because increasingly in the future this commodity is going to be more valuable than the generation of electricity. There are many indications of this, some of which I will try to indicate here in our presentation.

At page 36, following some statistics with regard to the consumption of water in the United States at the present and the tremendously accelerated rate at which this is taking place, we make the statement:

In the U.S. the available daily supply of water is 535 billion gallons. By 1975 it is estimated that 88 per cent of this—453 billion gallons a day will be required. Additional fresh water can be obtained by desalination, but this is very costly.

The cost in this regard amounts to something in the neighbourhood of \$325 per acre foot.

What does this have to do with the draft Columbia river treaty? Under the terms of the draft treaty, 20,000,000 acre feet of water will be stored in reservoirs in Canada and will be available in a regulated fashion. The treaty allows this water to be diverted for consumptive use—.

No one argues that fact although there are some other arguments in connection with diversion. The treaty will allow the water to be used for consumptive purposes. What is to prevent the United States from taking the water at about the confluence of the Snake and the Columbia and pumping it down into California after it has been stored in Canada, released and passed through all the U.S. power producing plants? There is nothing in the treaty which would prevent this from taking place, because this water would not be used for a multipurpose diversion, but for a consumptive one.

We state in our presentation:

Why doesn't the U.S. draw this water off now? For the same reason as the general difficulty with regard to the Columbia—the erratic flow.

The United States would do this if it had controlled water or somewhere to store it. The storage of this water has been assigned to Canada, and there

is absolutely nothing to prevent the United States from following this suggested course. This is not a wild-eyed proposition.

I have here a copy of the report by the Ralph M. Parsons Company, a world wide engineering firm which has proposed a \$100 billion expenditure for precisely this kind of a long distance shipment of water.

The situation in California is very acute with regard to water. Let me read you a quotation from the *Christian Science Monitor* which appears on page 38 of the brief. It reads as follows:

Now that California has been told once and for all that it can have just so much of the Colorado river and no more, its endless, restless search for water enters a new phase. The U.S. supreme court denied California's petition to consider its historic June 3, 1963 decision allocating the waters of the disputed Colorado. That decision allotted California 4,400,000 acre feet of the river's waters annually—less than it now draws.

Listen to the next phrase as it is particularly pertinent.

Now—after nearly half a century of aggressive warfare with Arizona over the dividing up of the Colorado waters, California's tactic will shift to protecting as much of 4,400,000 acre feet as it can while turning its major attention to the tapping of rivers in its own northern mountains.

I think it has probably been brought to the attention of the committee that this is a real proposition and that the state of California has a major water plan to bring the waters from its northern rivers to its southern part. To give you some idea of the significance of that and of its magnitude, I would like to point out to you the figure of 4,400,000 acre feet of water—that is how much they can bring down. They are prepared for a capital expenditure of just under \$2 billion and are in the process of floating bonds to that effect. What is to prevent them from extending that up into Canada and taking it off the Columbia? Nothing. We should not deny them that, but this treaty provides no compensation for this service which we provide and which actually makes it possible to regulate the flow of that river.

It has been argued that the treaty does not deny us the possibility of the maximum utilization of the water in the east Kootenay. Our right to do this is strictly guaranteed by the international Boundary Waters Treaty of 1909. What this treaty does—and I think we have to be very precise about this—is that it does not give Canada any rights; it takes them away. There is a virtual catalogue of rights which have been taken away with regard to diversion. First of all is the right to divert out of the basin for power purposes, and this is ruled out. Second, we have a small diversion which will take place in 20 years and a bigger one in about 80 years. Theoretically, it expires in 100 years' time. However, those rights are absolutely worthless because once this dam is built at Libby, Montana, it will flood back, and a whole series of relationships for power will have then built up which will be dependent upon this particular dam.

For Canada to claim the right to take that water off would be tantamount to an act of war as far as the United States is concerned. I think this has to be considered very seriously. It is all right to talk about rights in theory but in actual physical fact this is the thing that counts. I think this treaty should be rejected for that reason alone. I am no lawyer but I have tried to follow the reasoning in the testimony that was put forward. I think it is very clear that what in actual fact will take place if this treaty goes through will be a whole new concept of international law with regard to the boundary waters which will set a real precedent that will be very damaging to Canada, not only here

but in other rivers as well. The United States state department has made this very, very clear. You have had the quotation in many other instances and I am not going to repeat it here. I will just say that they have made it very clear that they expect the Columbia river treaty to establish a new branch of international law in which our rights have, as I said, been very severely limited. We have not been given any rights; our rights have been taken away as a result of this particular treaty. I think that is absolutely incontestable and I would be quite prepared to answer any questions with regard to this.

You may say we have to trust our neighbours as far as the negotiations are concerned. I think that is usually the case; there has to be a certain amount of trust. However, when you put things down in a treaty and spell them right out, just as in any contract, they must be precise, they must actually be accurate and no vagueness should be allowed. It must be done so that we know exactly where we stand in this connection. I say that in this particular regard the action of the United States government concerning boundary waters has, in the words of General McNaughton, been piratical. I think that word is absolutely accurate. When we enter into any agreement with the United States we must be absolutely certain that we exercise our control and not allow it to pass out of our hands.

I would like to state two instances in North America in connection with this. To my knowledge they have not been brought out here so far. They will give some idea of what is involved in the question of the international boundary waters. The first one has to do with the so-called Chicago diversion. I will quote from page 42:

At the turn of the century, the city of Chicago was dumping raw sewage into lake Michigan. As a result the drinking water needed for the metropolitan area became polluted. Chicago would not build a modern sewage plant, and instead built a canal from lake Michigan to the Desplains river to take off the polluted water. The canal diverted a large and increasing body of water into the Mississippi river basin.

Just how large a body became the centre of the controversy, but in 1909 the United States Secretary of State admitted it to be 7,240,000 acre feet per year. Such a diversion, which continues to this day, lowers the water level in all the great lakes and especially the ports on the St. Lawrence.

Many legal battles were fought in the United States courts over this because it also affected the great lakes on the United States side.

I think the following speech made by the Hon. J. P. B. Casgrain in the Canadian Senate on March 18, 1932, summed up the situation very well with regard to this particular aspect, and I want to read it to you.

What chance should we have with them? None whatever. Canada has protested but protested in vain. They have kept right on taking the water that did not belong to them, and we have not been able to stop them—

Pirates.

There was a sort of treaty made between Canada and the United States... This supposed treaty was entered into and signed on the 11th of January, 1909... The Canadian Commissioners actually agreed to sign that treaty though the Chicago Sanitary District were absolutely violating every condition of it at the very time the treaty was being made... They signed that treaty without knowing what they were signing and at a time when the other party in the case absolutely denied them any access to any documents or any data in its possession. The rights of Canada are ignored. No notice whatever is taken of them. It is just as if the United States had absolute control over the whole matter.

I would submit that this is what is likely to be the situation with the draft Columbia river treaty as it now stands. In fact, it is not only likely but the probability is of a very high order.

Mr. RYAN: Mr. Chairman, I cannot understand this pirate argument at all because we are still the upstream country and we are the ones who are likely to be the pirates. I do not see the relevance of this at all. I am sorry to interrupt, but that is the way it strikes me, and I might as well let the gentleman know at this point.

Mr. YORKE: All right, I will deal with that later.

Another instance has to do with the situation on the Colorado river in the United States and Mexico. This does not involve us but it is a very important matter because it illustrates a certain principle with regard to the necessity for exact and precise language as far as treaties are concerned. You may think that I am making a fetish of this, but I think the description here will show otherwise. Basically, this has to do with the fact that many years ago—and it is a rather long story, but I will give you the essence of the situation—a canal was built across part of Mexico to take water from the Colorado river for irrigation purposes for the Imperial valley in California. After a whole series of developments, a treaty was actually signed at Mexico in 1944 which said that the United States would give back to Mexico 1.5 million acre feet per year for the rights that had been established in this connection.

Has the United States lived up to this? I think this is of considerable importance to us. Just north of Mexico in the United States there is a vast subterranean lake of fossil salt water. Deep wells have been sunk and the water pumped out and discharged into the Colorado river near the point where it enters Mexico. The fresh water from the Colorado river is then pumped into the lake to replace the subterranean salt water, thus creating a huge reservoir of uncontaminated and incontaminable water. All of this salt water dumped into Mexico is charged to the quota of $1\frac{1}{2}$ million acre feet per year. Moreover, the United States is planning similar projects which will increase the volume of salt water five-fold to the extent that it will comprise two thirds of the entire quota.

In October, 1961, the salt index in the water delivered to Mexico reached such a level that it became necessary to discharge large amounts into the sea. I give the figures of the saline concentration in the brief.

Colorado river water has been used all along to irrigate the Mexicali valley in Mexico. With irrigation this valley is very fertile and produces four to five crops per year. When the salt water appeared, crops were killed and acre after acre were covered with an alkali crust. Despite vigorous protests, the dumping of the salt water continued, and as late as August, 1963, the saline index was still rising. I have attempted to find out whether this is still the case but I cannot report anything on this. It was still the case until August, 1963. If it does not stop, 500,000 acres of cultivable land will be lost forever and 300,000 people will be reduced to homeless vagabonds.

What was the position of the United States government on December 21, 1961? On that date the United States State department issued a statement which said—and this is the point:

The United States considers that it is complying fully with the terms of the treaty which does not oblige the United States to deliver any determined quality of water.

We quote here a leading Mexican, Raymon Beteta, who says:

The situation is reminiscent of an old Mexican saying—"the chickens on the top perches 'decorate' those below".

Mr. BYRNE: That is what we would be doing for the Americans.

Mr. YORKE: I think these two instances from history are sufficient to show the danger of signing a treaty in which we are not certain of our rights.

I think one has to look at this whole development from the point of view of what are the basic approaches that should be taken to the development of an international river. This was the job of the technical people, and they did this particular job. The International Joint Commission principles in 1959 actually established those. They are very complex and very technical, but the essence of them is contained in an extract which appears in the green book. The extract reads as follows:

It would be consistent with customary practice to give first consideration to those projects that are most attractive economically as reflected in the ratio of benefits to costs... It is recognized, however, that the results to be obtained from possible co-operative projects in the Columbia river basin will constitute only a part of the total requirements for water resource development and use in the affected regions in both countries. Therefore application of the principle will necessarily be subject—

And this we are underlining.

—to the sovereign responsibilities in each country, with respect to many vital and important national interests which must be taken into account in utilizing the water resources in each country.

This is a concept of co-operation. It is not a concept of integration. It lies actually at the root of the problem as far as what to do with the Columbia and what has been done.

I would like to read into the record a statement of General McNaughton in this connection because this is right at the heart of the matter. This is what he had to say in a meeting that was possibly held in this very room two years ago:

The above-mentioned International Joint Commission report of December 29, 1959 presents the unanimous conclusion of the International Joint Commission—

That is to say, the technical people.

—although it was preceded in the International Joint Commission by very sharp discussion conducted largely between the then chief of United States army engineers, General Itschner and myself in regard to the basic principles of organization and administration of the power arrangements which would be made. In this it was evident that the United States wished for integration of the operation of the Canadian storages and generation into the United States system as an extension of the Bonneville Power Administration and to be under their effective control. I expressed the view that the instruction of the government of March 1944 and June 1959, and moreover the boundary waters treaty of 1909 itself, did not comprehend any such relinquishment to the United States of any such control over the water resources of Canada. I stated that, in my view, what was called for was a Canadian entity and a United States entity, each fully accountable to its own government, and these, by mutual co-operation within stated principles, could gain the benefits of upstream Canadian storage and share these benefits equitably—an equal division was agreed.

Then the general goes on to say:

I am happy to say that eventually, with the complete agreement of the Canadian and United States commissioners, these views prevailed;

though I do not think they were ever agreed to by the United States army engineers. The International Joint Commission principles do not therefore contemplate integration in one management...

And so on.

At the opening of negotiations it was reported that the United States would regard the International Joint Commission principles "as guide lines" useful to bring attention to the various points which needed to be negotiated but in no wise would they accord them the status of authoritative conclusions. Following this "downgrading of the International Joint Commission principles" I think it a very great pity that the Canadian negotiators did not break off the discussions because in their continuance they found themselves exposed, without authoritative guidance, to the much more highly skilled United States team which had adopted the objectives of the United States army. In the result eventually with very great assistance from British Columbia, the United States negotiators were able to outmode the "Canadian best plan of development" and to reintroduce the concept of integration and to arrange in the treaty that effective control of the Canadian storages would be vested in the United States entity, both in regard to power and for flood control.

This is where the situation got off the track as far as development of this river is concerned. The technical work of experts in connection with how the river should be developed was abandoned, and political considerations became the dominant matter.

I think that the statement that General McNaughton has made here with regard to the basis of the situation is something which bears very careful consideration by this committee. I think also the last part of that statement is particularly important, where he says "eventually with very great assistance from British Columbia", because I think the next part of the presentation we make has to deal with political matters; and I think that they have to be dealt with because in our view this is what happened: it was taken out of the technical field and made a political matter.

In that regard there comes up the question of the jurisdiction of powers in Canada under the British North America Act. Under the British North America Act the federal government is given jurisdiction to conduct treaty negotiations with foreign powers and that act also grants jurisdiction over natural resources to the provinces. Since the Columbia river draft treaty involves a question of natural resources, there would appear to be two conflicting centres of authority. However, in actual fact, the federal authority can assert itself, if it so desires, and I emphasize the words "if it so desires". This is clearly shown in section 91, part 29, and section 92, part 10(c) of the British North America Act which says that the exclusive legislative authority of the parliament of Canada extends to,

such works as although wholly situate within the province, are before or after their execution declared by the parliament of Canada to be for the general advantage of Canada or for the advantage of two or more of the provinces.

The Columbia river is a large development and it is quite clear that it could have nation-wide advantages. There is the power that could be utilized for a national grid, and there is the diversion of waters for the prairies, and more particularly, because of the competitive position of Canadian industry, and in regard to the aluminum industry in particular. I think everybody knows that in 1955 the provincial government had an arrangement with the Kaiser Aluminum Company in the United States for building a low dam at the foot

of the Arrow lakes. But an act of the federal government was passed which blocked that development, even though it was for a low dam, and one which would not have flooded out this area in the Arrow lakes.

That action took place, and an Act was established which said, or which asserted the sovereignty in a negative fashion as far as the federal government was concerned. It said that nothing could take place on the Columbia river until the federal government also agreed to it. It is our opinion that this negative assertion of sovereignty can be extended, if it is in the national interest, to a positive assertion as to jurisdiction over such a development. The very fact that the provincial government in 1955 argued in favour of the building of a low dam at the foot of the Arrow lakes, because it would not flood out this area, I think is something that should also give very serious cause for concern to this committee. The federal government has already acted once on the basis of preventing a low dam, but now it is prepared to consider the question of a high dam which would flood out this entire area.

Now, how did this come about? When we mention the question of politics in connection with this development, where the integration concept was introduced, we cannot prove it, but we are going to show it and ask that it be investigated. And our authority for it is a newspaper article that appeared in the *Victoria Times* of October 21, 1960. I am going to read it. It was written by Tom Gould, who is a rather respected columnist.

Mr. LEBOE: What is the page?

Mr. YORKE: It is on page 51 at the bottom. I am sorry for jumping around quite a bit.

In this article Mr. Gould describes the course of negotiations with the United States and he says:

The United States negotiators, in a highly secret confab at the Seignory Club—a luxury resort on the Quebec side of the Ottawa river—told Mr. Fulton they were willing to drop all demands for Libby.

This is what Mr. Gould said.

Mr. BYRNE: Was he there?

Mr. YORKE: He will have to speak for himself. I continue:

Following this private meeting a formal negotiating session was called. Here is what happened at that fateful meeting, as described in Tom Gould's article.

Mr. LEBOE: How long are we going to sit here in this committee? We have been here for over an hour already. Are we going to sit here and entertain long stories on hearsay in this committee?

Mr. HERRIDGE: The witness introduces this as a basis for suggesting to the committee that this is a subject which should be investigated. It is being done on that basis. I think he is on very strong ground.

The CHAIRMAN: I want to be fair to the committee and I certainly do not want to circumscribe or limit any witness who has come here in answer to a request. But we have a submission here of some 100 pages exactly which was, believe, in the hands of this committee over a week ago, and I have been advised by some members of the committee that it has been read and studied very carefully and thoroughly. We asked Mr. Yorke to summarize this submission as succinctly and briefly as he could yet his summary has already taken an hour and 20 minutes. Perhaps it is an impossible thing to do, but nothing I have heard yet represents anything new or really anything other than a summary of what has been presented. After all, we do have a very important committee. It is a well attended one, and we would like the opportunity to question Mr. Yorke, I am sure. He has left us for this afternoon's

session only 35 minutes. It might be that much of the information that he would be seeking to bring out in this form would be coming out by way of questions.

Mr. HERRIDGE: Most members of the committee will admit that Mr. Yorke has brought the subject out in a very graphic manner and has dealt with it in a somewhat different fashion from other witnesses. This is a very important matter. These witnesses have come to us from Vancouver. Obviously from the format of their brief they have spent a great deal of time on it. Surely we can give Mr. Yorke this afternoon, and if necessary, from eight until ten this evening to present his argument to this committee, or for us to question him. I suggest it is only fair.

The CHAIRMAN: I think that Mr. Yorke is presenting his argument in a most admirable way. The real question is whether or not he chooses to continue in this way. Since he is only at page 52 of his brief right now, we have scarcely covered one half of his submission. We have spent an hour and a half, approximately, on that. I do not wish to cut you short. The subject is tremendously important.

Mr. YORKE: I promised to finish by six o'clock.

Mr. DEACHMAN: Mr. Chairman, on the point of order regarding the introduction of the story by Tom Gould, I believe we are going to have Mr. Fulton before us at a later time. He is a privy councillor, a lawyer, a former minister, and I believe he would be capable of dealing with any newspaper statement which is read into the record at this time. If the witness feels that it is in his interest to read into the record a newspaper story at this time, I do not think the committee should quarrel with that.

The CHAIRMAN: You have brought up this point, Mr. Leboe, and perhaps Mr. Yorke would be guided by his own good sense.

Mr. BREWIN: I would very much like to hear what the witness has to say about this.

Mr. BYRNE: Mr. Chairman, the custom has been that when witnesses have presented a brief some week or ten days ahead of time, they would simply summarize that brief and then subject themselves to questions based on the brief. For my part I have heard very little, if anything, that is new evidence and the evidence we are about to hear now which has not been presented previously is hearsay evidence, a newspaper man's report of something which took place behind, I believe he said, green shrouded doors where no one could hear anything.

Mr. GELBER: On the east side of the Ottawa river.

Mr. BYRNE: I am very interested in what has been said, but I think we are giving a privilege which we did not give to other witnesses, such as Mr. Higgins who was a technical witness.

Mr. LEOE: Mr. Chairman, this is not in line with the thought we had when we curtailed others and asked them to summarize. I am certain that a person reading the brief could read the whole brief in two hours, so this is a long way from being a summary, and does not make sense to me.

Mr. HERRIDGE: Let the witness continue and save time.

The CHAIRMAN: Would you carry on? I want you to feel you have had a good hearing in this committee.

Mr. KINDT: Mr. Chairman, I think of all the persons who have come before this committee, this gentleman is trying his best to give us what this committee should know about the Columbia river treaty. Now, why interrupt him, or place obstacles in his way, or bring up phony statements. Let us hear his story.

Mr. BYRNE: I am prepared to accept the fact that Dr. Kindt does not know some of the things that have been brought up this afternoon. Personally

I certainly have heard these things at least three or four times before. However, I am prepared to listen again if Dr. Kindt wishes to sit here.

The CHAIRMAN: Proceed.

Mr. YORKE: As I said, this is what Mr. Gould wrote:

Behind a door covered with sound-dampening green felt, an assorted group of engineers, economists and politicians met to discuss the fate of the Columbia river basin. The place was Ottawa. . . the time, early spring of 1960. One of the British Columbia representatives suddenly blurted out: 'B.C. has no intention of constructing or allowing the construction of dams in the Kootenay valley.' A hush fell over the room. Justice Minister Davie Fulton, Canada's senior negotiator, immediately called a recess. The senior United States negotiator, Elmer Bennett wore a puzzled look while elation shone on the face of General Itschner, chief of the United States corps of engineers.

Now, I was not there. As I say, we have made this demand, and a few other things that we state in here which I will not go into. Because this involves the constitutional right with regard to who is authorized to carry on negotiations, we make the demand that this should be established once and for all, because somebody is lying—somebody is. One way or another, we feel this is a vital matter. Actually, this is the heart of the problem.

As a matter of fact, I would like to attempt to show why, in some instances, this is the case. Have the members of the committee ever asked themselves why it is that the Libby dam is an option in the treaty, when it has been authorized, so far as the United States is concerned, away back in 1950. We have offered an explanation with regard to why it was an option. At page 53 of the brief we quote from a letter to the Engineering and Contract Record that Mr. Fulton wrote in September, 1962:

British Columbia made it clear—

And then there is the editorial note that unfortunately there are no details.

—it would not accept or carry out the extensive flooding of the east Kootenays . . . We had to decide whether it was better to explore the possibility of an advantageous plan of development without flooding of the east Kootenay or to drop negotiations. It became clear that a plan could be worked out that was much better for Canada than no co-operative development at all, so negotiations proceeded.

Inherent in that statement is the idea that this is a second best treaty; that is very much inherent in that particular statement. We say:

But Mr. Fulton is not telling the full story. The manner in which the British Columbia representative had vetoed diversion had stripped him of bargaining strength.

If this reported statement is true.

It was reasonable to assume that he would feel at such great disadvantage that he would break off negotiations. But at this critical juncture the Washington negotiators offered Fulton a face-saver.

This is speculation, but we think it makes a good deal of sense.

They proposed a five-year option plan with regard to Libby construction. This was designed to give the impression that the Americans were uncertain about Libby and that they would be doing Canada a favour if they proceeded with construction. Instead of asking for an immediate permanent right to construct Libby, the option was designed to entice Mr. Fulton to continue negotiations because the United States feared that he might call them off and there would be no treaty. Mr. Fulton—

This is an opinion.

—was taken in by this deception.

The moment we gave up our rights with regard to this six million acre feet of water from the east Kootenay, the flood gates were open and we had no bargaining power.

We have described here what is our opinion of the United States army corps of engineers, and how they moved in and actually designed the treaty. As I am sure everyone is aware, the technical aspects of the treaty are extremely complex and complicated. For 20 or 30 years they have been doing nothing but making a living from and working on an extensive study of the whole Columbia river system. As I say, there are volumes a foot high on it. They know every last little nook and cranny of it, and also every last nook and cranny of the technical and legal formulations in it.

We consider that is what happened; that is, that they actually came in and in effect wrote that treaty in a fashion that guaranteed their control of the resource. We say this charge is a serious charge and should be investigated. We quote other persons in here such as Mr. Greene and Mr. Williston—who categorically denied it—and we would like to have these persons testify with regard to what actually happened, because we feel this is a very important point.

If it is Mr. Williston and the British Columbia government, then we say even now it is not too late, in the name of Canadian sovereignty, for the federal government to retain control of the Columbia for our country. In a final analysis, British Columbia cannot deliver the Libby dam; the federal government still must put their name to any treaty which authorizes this. The final decision rests with this committee and, through this committee, with parliament.

In the next section we go to explain some of the pressure that Mr. Fulton warned about, the United States-Bennett pressure play which had to be resisted. We describe that in some detail here, and we say that he was very successful—I repeat, very successful—because in actual fact conditions which he proposed all the way through are found in the treaty today; the specific form of it is the sale of the downstream benefits today. It is in this regard that I say that the quotation I made from Mr. Fulton earlier is very much in context, and that that particular act is the essence of a difference that took place at that particular time. In describing that act you are, in effect, describing the entire treaty. That is the answer I would like to give to that in advance.

We say some other things as well. I must say as I come from British Columbia I was absolutely shocked in respect of the statement that the premier made with regard to the possible utilization of that water in the east Kootenay in Saskatchewan. He said: "Keep your cotton picking fingers off our water". As I say, this is the remark that was made to the premier of a sister province, and that will show you the extent of what is involved.

Mr. LEBOE: Did you hear him say this?

Mr. YORKE: I read this in the press and I have not heard it denied.

Mr. LEBOE: That is all I wanted to know.

Mr. YORKE: Gentlemen, I promised I would be finished at 6 o'clock and I am going to do my very best to do so. We have some slides which we would like to show. With your permission, I would like to show them at the beginning of our sittings tonight. I promise it will take only about 10 minutes. The purpose of these slides is to counter the argumentation in respect to the valley in the Kootenay being flooded as being more disadvantageous than flooding the Arrow valley. This is the official explanation why the High Arrow dam should be built and not the East Kootenay diversion. I want to show these pic-

tures because we spent quite a bit of time taking them. We will show what the actual dams are like and you can draw your own conclusion about what the truth of the matter is. It is not a matter of figures but you will see it in actual fact. As I say, I would like to show them at the beginning, and I promise it will take only a few minutes to do so.

Mr. HERRIDGE: At the beginning of what?

Mr. YORKE: I am sorry; at 8 o'clock tonight.

Mr. HERRIDGE: Very good.

Mr. YORKE: In order to finish what we have to say, I think I have attempted to give a description of why the east Kootenay diversion and the building of the storage reservoir from Luxor to Bull river is such a magnificent proposition. The main reason is the water is up high, the highest part in the Columbia system, and it is possible to store a significant amount of water; it goes through $2\frac{1}{2}$ times the head which is possible by any other means, and it allows the possibility of flexible use of all that storage. There is enough there to take care of flood control in the lower Columbia river plain. And even if it might cost a little bit more—I repeat, even if that is the case, and on the basis of the fact we have not been able to secure all the figures, and they keep jumping around all the time—it would be worth it to us in the long run two or three times over to retain control of that amount of water; in the final analysis it would be far better that nothing taking place in the East Kootenay, including Libby, than to surrender that up.

We made some calculations in that regard and we have attempted point by point to review the argumentation that was put forward by the provincial government. At this time I will not go through all these; you can read them in our brief as well as I can. As I said, we reviewed the argumentation that was put forward by the provincial government in British Columbia in regard to why there should not be a development in the east Kootenay. We have gone through that point by point, and I refer it to you for your consideration. Even the British Columbia government—I was just looking this up the other day—admits the question of more power. Here is the official speech that was made by Mr. Williston in the British Columbia legislature on February 8, 1961, in describing this whole proposition. He made a number of other points but his first point was this, in respect of the Dorr-Bull-Luxor development:

The Dorr-Bull-Luxor development showed the following major advantages:

It would allow Canada to eventually divert the major part of the east Kootenay river flows to the Columbia river in Canada and increase the ultimate power production of the Canadian portion of the basin by about 15 per cent.

There is a fairly clear statement in respect of that.

Now, we have a picture on page 69A from which we try to visualize and show in a pictorial form what the east Kootenay diversion—and I must say we do not like that phrase—would be. You can see the Kootenay river coming in from the right, and you have a sort of artificial lake formed by the confluence of the two rivers. It is not just a diversion which goes wild; it is capable of being controlled and released either way. Really, it is a situation which does not occur very often in nature and it should be maximized.

The next point we deal with is the High Arrow dam, and we call this an economic albatross so far as Canada is concerned. I would like to say why we feel that is the case.

This dam is a storage dam; there are no provisions in it for production of power in Canada. In fact, its main function and almost its sole reason for existence—and I am going to argue in that regard—is to keep the Grand Coulee

reservoir full, to draw High Arrow down, to make it so that Grand Coulee has a maximum amount of head and a maximum amount of generation. That in reality is the only means of existence for High Arrow. That is the reason why it is there. The Americans cannot control enough water themselves, and in the process of drawing down High Arrow they will in fact wipe out the community and the whole river valley. This is absolutely not necessary.

As I said, I am not an engineer, but I should like to state that the whole argument that the High Arrow project is necessary to actually re-regulate Mica does not make sense when you consider the possibility of a Peace river development, developing all kinds of power, and providing an answer in respect of the question of re-regulation. I do not think there is any sense to the idea of wiping out the whole community on that basis especially when there is enough storage at Mica alone or in combination with the east Kootenay development to take care of all the needs of the United States as far as flood control is concerned. We feel this feature of this treaty is in effect a straight jacket. It calls for too much storage designed to maximize benefits as far as the United States is concerned and minimize benefits as far as Canada is concerned. I think we are very much concerned with that difference.

I should like to read a quotation from the local International Union of Mine, Mill and Smelter Workers of Trail, British Columbia, because this expresses the opinion of the working people in that area—the majority of the working people belong to the I.U.M.S.W.—in a very concise and accurate way. This is what they say in regard to the possibility of building the High Arrow project, and this quotation appears at page 74 of our brief:

‘Our local union is the representative body of some 3,100 workers and their families who live in and around the area immediately affected by the proposed project—

The quotation then continues and states that any threatened disruption or destruction of this most valuable recreational area is looked upon with alarm.

The quotation then continues:

It would appear to us that through the provisions of the treaty, the granting of a water licence would mean not only the condemning to a watery grave thousands of acres of Canadian soil, but also the surrendering of Canadian sovereignty in that the Arrow lakes and upper Columbia will be fully controlled and geared to the needs and dictates of a foreign country—

This applies to the fact that this reservoir must be kept full.

Then the quotation continues as follows:

Canadian storage increasing United States power output will not reap for us or for our children the full benefit of this rich heritage. The exporting of either power or controlled water means, in effect, the export of jobs and the aiding of the growth of American industries whose products we in turn will import. It is in manufactured and finished goods that the greatest return to labour, industry and the state lies, and our resources should be developed with this in mind. We maintain that in order to accomplish this end, Canadian officials must look to projects capable of on site Canadian power generation controlled by Canadians. One of these projects could, and should be Murphy creek—

This could be done at Murphy Creek after the confluence of the Kootenay and the Columbia, and this would be a power producing project in Canada, producing as much power as theoretically we are going to have returned or credited to us from the High Arrow project. This is an on site potential and we mention the figures here.

The quotation then continues as follows:

As smelter workers we are sometimes made very aware of the important part hydro power plays towards our lives and jobs on the odd occasion when there is a power failure and the massive industrial giant of Cominco grinds to an abrupt stop. We have seen the power needs of our employer grow—

The quotation then refers to the on site development of power at Mica and Murphy creek, and then in the next paragraph states:

Storage dams like High Arrow will lead us away from such a course and regardless of whether the return is fair or unfair in the terms of today's money values it relegates Canadians to the restrictive position of being exporters of power and stores of water for United States industry, thereby robbing us of the real value of our rich heritage.

The following statement I consider covers a very important point.

When such a project is finished the few jobs it created will also be finished leaving few, if any, seeds for future jobs. The shared power that United States generators develop from the project will become and remain committed and sold for an immediate monetary return only. This we warn is wrong and had the United States showed such lack of vision in its early development stages it would never have become the mighty industrial country that it is today. The foremost countries of the world are not those who export their rich raw materials and natural resources, but rather those who pursue heavy and secondary industry utilizing the raw materials and resources by processing and manufacturing to the fullest extent.

Mr. WILLOUGHBY: How many people were present when this resolution was passed?

Mr. HERRIDGE: The witness was not present. I was present and can answer that question. The number of people present was approximately 200.

Mr. DEACHMAN: In view of the fact that this brief is the witness' brief he should be allowed to answer the question.

Mr. YORKE: I do not know the number present but this was a policy brief prepared by the local union concerned.

We close our brief by putting forth some conceptions that we consider to be Canadian and national, calling for full utilization of the maximum power, energy and water in the Columbia system in Canada, and we do this in order to counter the argument which has been made that we have no need for this particular power. We point out the great advantages that exist in respect of a national power grid, and we suggest that our country is particularly suited for the development of new ways of transmitting energy over long distances such as by the direct current method. We suggest that we should pioneer this method because our country with its vast expanses is particularly suited in this regard. If the United States can consider doing this, then we should consider it also. We feel that it is necessary to maximize the power production in Canada.

Also, in concluding, we refer to the idea of pumping some of this water up over the mountains as well as developing power on the Saskatchewan river itself, therefore making it cheaper to transmit it into Ontario which will and does badly require this energy.

We feel that this treaty should be rejected because it minimizes Canadian interests and actually puts us in a strait-jacket. We feel that some of the projects are not necessary and that the returns, as far as we are concerned, are

of a short term duration only and do not lay the groundwork for the development of secondary industries of the type from which flow great development.

I should like to say that everything we have stated is exactly the same without change in respect of the protocol. We have considered the protocol point by point and have come to the same conclusion.

I have read the testimony of General McNaughton regarding the extension of the flood control provisions by the so-called 600,000 cubic feet per second plan very carefully. We feel that all the answers given to the questions asked of General McNaughton clearly point out that the United States has complete control of the flow of the rivers to their benefit.

As I have suggested one would have to be a lawyer to be able to jump from one place to another, but we feel that as far as the area of power is concerned, the area of integration has been extended. Previously it was defined as only the optimum generation in respect of the Columbia river basin. It has now been extended to include any electric inter-connection. Since this will involve California demands, it gives even greater weight to the argument as far as the United States is concerned.

Finally I should like to quote from a statement made by a member of this committee who has just come into the room. I think that his statement at the time it was made was true and is still true.

I should like to quote from a statement made by Mr. Davis in a feature article appearing in the Vancouver *Sun* on February 28, 1963. This quotation appears at page 84 of our brief and is:

A new treaty phrased in terms of principles should come first.

Approval of individual projects should come next.

I take that to mean we should not proceed all at once with this over-all strait-jacket proposal.

Then the quote continues as follows:

A procedure which would permit the politically most acceptable and the economically most desirable projects to go ahead is the ONLY way out of the present impasse.

Mr. Davis continued to spell out his thoughts in regard to the High Arrow and Libby storage projects which are the two main monstrosities as far as this treaty is concerned.

Mr. Chairman and members of the committee I should like to thank you for your patience this afternoon.

Mr. KINDT: On what page of your brief does that statement appear?

Mr. YORKE: That quotation appears at page 84 of the brief.

I shall be pleased to answer any questions as best as I can following the short time necessary to show the slides to which I made reference.

Mr. HERRIDGE: Mr. Chairman, I move we adjourn until 8 o'clock.

The CHAIRMAN: Is that suggestion agreeable?

EVENING SITTING

MONDAY, May 4, 1964.

The CHAIRMAN: Gentlemen, it was agreed that we would reconvene at eight o'clock and have some slides shown to us.

Mr. YORKE: In the first set of slides I will trace the course of the main river. This slide shows the headwaters of the Columbia going south into Columbia lake. You cannot see the Kootenay in the background but it is only a mile away.

This is a few miles upstream at Luxor, the place where the proposed dams are.

This is at the top of the Big Bend after the Columbia has gone north and turned south. You can see the beginning of the new Rogers pass highway on the right. Down that valley is, I believe, the Eagle pass where it was possible to make a diversion at Revelstoke.

This is the river after it has gone south, just before the confluence with the Kootenay. You can see how wide it is there. This is at Castlegar.

This is the picture of the river at Trail. It is just a short part of the river in Canada. You have here the Kootenay and the Columbia coming together and this is the last 20 miles. You can see how big the river is. So much for the Columbia.

This is the headwaters of the Kootenay at about 4,500 feet.

This is a picture that we have all seen. In the foreground we see the Kootenay flowing south, and in the background is the Columbia lake. That is a geographical characteristic which makes a diversion quite simple. The idea of a diversion of a tributary into the main stream is quite unique.

This is a picture of the Kootenay after it has gone into the United States and returned up into Canada. This is at Creston flats. You can just see the Kootenay in those trees coming back into Canada, forming Kootenay lake. This is agricultural land, and both the Libby dam proposition and the building of the Dorr-Bull river-Luxor would prevent flooding in this area.

Finally, this is the confluence of the Kootenay where it finally joins the Columbia. The Kootenay is on the left and the Columbia is on the right. That is where the two finally come together. Down below there is a Doukhobor wedding.

Now, I would like to show you scenes from the Arrow valley which would be flooded out by the draft treaty plan, and scenes from the east Kootenay valley.

As far as I can determine, this is the site of the High Arrow dam.

This is 20 miles upstream going across on the little ferry from the east side at the lower Arrow lake to the west side. As I say, this is about 18 miles upstream. It is a very beautiful sight. You can see how sharp and fjord-like the valley is. Over here on the left is the little village of Renata which turns out beautiful fruit.

This is slightly downstream from Renata, about 16 or 18 miles up from the proposed High Arrow site. You can see there quite a large boom of logs. Part of the difficulty with High Arrow is the necessity, because of the tremendous rise and fall of the river, some 70 feet, of getting those logs back over that dam into Celgar which is just downstream.

This is a portion of the town of Nakusp. It is more or less in the middle of the Arrow lakes, about 80 miles upstream. It is a lumbering centre, and as you can see all that would be wiped out.

Mr. HERRIDGE: Practically everything there.

Mr. YORKE: Practically everything.

Mr. WILLOUGHBY: What about the homestead?

Mr. YORKE: I have no pictures of that.

The farm shown in the next picture is situated in the valley near Nakusp. I think this is Mr. Spicer's farm; it would be completely wiped out. One can see how beautiful is the area from that picture.

Mr. HERRIDGE: Fifteen thousand dollars worth of vegetables were grown on ten acres there last year.

Mr. YORKE: I thought you might like to see some pictures showing the scenic values of the area. This slide of the lake shows how sharp is the valley.

Mr. KINDT: Where is that?

Mr. YORKE: This is at Nakusp. This series of slides is centred around Nakusp.

Yet another picture of the valley: this gives an idea of the beauty of the area.

Mr. KINDT: Will that land be flooded?

Mr. YORKE: I cannot tell. Mr. Herridge says it will, but I do not really know myself.

Here, one sees the Scalping Knife reflection and the beaches on the other side of the lake are very apparent there. I have heard it testified that there are no beaches there, but as you can see from this picture that testimony is incorrect.

Mr. HERRIDGE: There are 50 miles of beach from Revelstoke to Castlegar.

Mr. YORKE: In this view one sees that the area is a most beautiful park-land. We maintain there is no necessity to destroy this.

Mr. HERRIDGE: That view is looking south from Nakusp.

Mr. YORKE: I have another picture here which shows the beaches, the boats on the lake, and the very steep sides.

This series of pictures has been just a travelogue, but in showing you these I have been attempting to give you some idea of the beauty and the recreational aspect of the area. If this were flooded out, because of the rise and fall it would not be feasible for settlement to take place.

I would like now to show you some pictures of the other valley, a combination of the Kootenay and upper Columbia. I will first show you a picture of the proposed dam site at Bull river. You will remember that this is getting close to the border where the water would be intercepted.

The CHAIRMAN: Gentlemen, it is very difficult for the reporter to take down this material. Of necessity, it is being taken down in darkness. I think it would be helpful if only Mr. Yorke were to speak. It is very difficult for the reporter if other people are interjecting.

Mr. YORKE: The proposed site at Luxor is shown in my next picture. The next slide is almost in the middle of the valley near Wilmer. I took this picture in order to illustrate the high bluffs. Here, you see the Columbia meandering down below; it is quite a slough in that particular area.

Looking across from Wilmer one gains some idea of the benches that are back there.

The next view is taken almost from the middle of the valley looking south towards the United States border. From this picture one can see that it is quite a wide valley. I believe it is approximately ten miles wide and it is not sharp in any way, shape or form.

The series of pictures I am about to show you were taken from the forest warden's lookout at the top of mount Swansea. My three boys are junior forest wardens, and we climbed up there in order to get the best view of the valley. The first of this series is looking south. Horizontally across the picture one sees Lake Windermere, and farther to the left on the picture one sees the headwater of the Columbia. From the lake to the mountain in the area shown here it would be quite possible to resettle people if the lake were to be controlled and not utilized in a severe drawdown fashion. One could actually enhance that entire area because, believe it or not, one of the things it needs is water for irrigation purposes.

In order to show you the main settlements in the area I took this view of the upper end of Windermere lake and the towns of Atholmere and Invermere, the main settlements. This would be partially flooded; there are no two

ways about that. However, in my opinion there is a great deal of room farther back which could well be utilized for resettlement purposes.

This picture of the top end of the valley looking towards Luxor is shown in an attempt to give some idea of the amount of room available for resettlement. I went up and down both valleys in order to make a conclusion about the advantages and disadvantages. One cannot argue too much one way or the other because they are pretty even. I am not an agriculturist or anything of that nature, but I would think there is potentially much more land that could be irrigated in the Windermere valley than there is in the Arrow valley.

I have no more slides, Mr. Chairman, but I would like to say something further.

I think it would be very useful if the committee could go to British Columbia and see the area for themselves. If they were to go there and actually see the area, they could then judge for themselves and would not have to take any second hand opinions with regard to the situation.

The CHAIRMAN: Gentlemen, this concludes the presentation by Mr. Bruce Yorke.

The first name I have on my list of members who wish to ask questions is Mr. Kindt; in fact, Mr. Kindt's is the only name I have on my list at the moment but I will recognize those who wish to ask any questions now.

Mr. KINDT: Mr. Yorke, can you in a nutshell summarize the points which in your view Canada is losing under this treaty? You have mentioned sovereign rights and so on. For the benefit of the committee, can you summarize the various things which Canada will lose if they go into this treaty?

Mr. YORKE: I think the main thing is control over the flow of the river; following that, the possibilities of the maximum development of at site power in Canada; and possible diversion in the future for multipurpose use either on the Fraser or over the hump into the Saskatchewan. A lot of very valuable Canadian land and recreational areas in the Arrow lakes, and most importantly, the consequence of this as far as the union is concerned, is the opportunity quickly to develop secondary industry to the maximum, because of the basic assumption of the exporting of raw material—this particular raw material, namely, stored water which we feel can be put to use first in Canada and then in the United States. In other words, it does not have to be an anti-American proposition. That is what we see as the opportunity first to utilize our own resources, and then the Americans. I think that is the intent of it.

Mr. KINDT: To judge from what you have said in the brief it is your view that Canada under this treaty gets Mica but loses the Arrow lakes and the diversion at Libby, while on the right hand side of the ledger they get \$254,000,000 plus \$64,000,000, plus Mica. Is that your view, weighing these things in the balance, of what Canada would receive in relation to what the United States would receive?

Mr. YORKE: The only thing we receive literally is cash, that is all. That is absolutely all! And in our view this is a very short sighted proposition, for literally it means selling out all of the resources, and this is a literal expression, and that is all there is in it as far as we are concerned; it is a short-term position which we will be stuck with for generations.

Mr. KINDT: Can you give us another word or two on your views on flood control rights, storage rights, and flood control under this treaty, and its "forever" aspect?

Mr. YORKE: As I understand it, the United States corps of army engineers made quite an extensive study, and they determined that the flow of the river can be controlled to 800,000 cubic feet per second at the Dalles; that is, what they call primary flood damage would be averted if that could be done. But

in order to do that, according to their own testimony, it is necessary to have 6½ million acre feet of upstream storage from the Dalles. Now, it is my view and my understanding of it that we should let them have it. There is nothing wrong with that whatsoever; it would be a very fine policy on our part to let them have it. But here this proposition contemplates 20 million acre feet and by a very intricate arrangement in the treaty, as I tried to indicate, and the protocol—I am not going to bore you with these details because you have all been through them before—it is actually established that as far as flood control is concerned, the United States has the right to the evacuation of a good portion of the Arrow, most of the Duncan, and, believe it or not, a small bit of Mica which has sort of “snuck” in there to establish a certain principle of tying that whole storage in, and they have the right of refill.

That in fact means that when they control the right of refill, they may eventually control the flow of the river because there are only certain minimum outflows but they are a small proportion of the average flow on the river. I cannot explain all the details in connection with this point, but by over committing our storage—I say over committing our storage—the situation that is more than likely to develop—in fact it is almost inevitable that what will happen—is that it will not be a question of restricting to the 800,000 cubic feet per second; as a matter of fact, the protocol has reduced it already down to 600,000 cubic feet per second, which is quite a substantial difference. And what is going to happen will be that in this particular area here in the lower flood plain, all this upstream storage is sort of tied into the treaty, and you will see it come down to 450,000 cubic feet per second in actual fact, because there is nothing in the treaty which prevents it, and it is not spelled out to prevent it, and you are going to have this area develop into an area which will rival Vancouver as far as a port and all of that is concerned goes.

We say this is not necessary. We say that we should not be called upon to help to create a condition which is to our disadvantage. There is nothing wrong with us doing something which does not do us any harm and helps a neighbour; but to carry that quantity to the extent that it becomes the exact opposite, that is what is wrong.

Mr. DEACHMAN: I have a supplementary question on a point that I do not quite understand. You say that we have over committed storage, that we are storing more than we need to store. Is that correct?

Mr. YORKE: That is my understanding of the situation.

Mr. DEACHMAN: If we were just storing the minimum fluctuation behind our own dams, would this be the maximum? If we stored just the minimum required for flood control, then the minimum fluctuation which would take place behind our own dam would be the maximum fluctuation, and we would have the minimum of water in there. Is that not right? In other words, they would be drawing off down to the lowest possible level in order to fill the tank up again to the level necessary for flood control, and you would have a maximum fluctuation situation behind the dam?

Mr. YORKE: I am afraid I cannot honestly understand your question. I do not quite understand what you are getting at.

Mr. DEACHMAN: What I am getting at is this: we have a given quantity of water which is necessary to establish flood control, and this is based on the minimum number of cubic feet, or the capacity of water to prevent flooding down below. Is that not right?

Mr. YORKE: As I say, the United States army corps of engineers set 6½ million acre feet upstream.

Mr. DEACHMAN: That is the amount which would take care of it?

Mr. YORKE: Yes.

Mr. DEACHMAN: If they had that much, they would let off in worsened conditions the whole $6\frac{1}{2}$ million acre feet, and down she would come. Is that not right?

Mr. YORKE: Yes, in the worse possible condition, if there was going to be a big flood, so to speak, you would want to empty out the storage to take this $6\frac{1}{2}$ million acre feet. So you would empty out the reservoir in order to take that $6\frac{1}{2}$ million acre feet in when the flood came down?

Mr. YORKE: That is right.

Mr. DEACHMAN: If you overstore, then you store more water; that is, with the total amount that you would have behind your dam, you still control your top storage, according to the engineers, only if they empty out $6\frac{1}{2}$ million acre feet for safety. Now you do not have to empty out the whole reservoir, you only have to empty out a portion of it to fill up to the flood. Is that not right?

Mr. YORKE: You still have to provide space for $6\frac{1}{2}$ million acre feet no matter how much is in there.

Mr. DEACHMAN: But suppose we overstore. Now we have behind the dams not only $6\frac{1}{2}$ million acre feet, but more if we are overstored. Is that not right? You have more than the $6\frac{1}{2}$ million acre feet behind the dam.

Mr. YORKE: All right.

Mr. DEACHMAN: If we overstore, we have more than $6\frac{1}{2}$ million acre feet, and under the conditions we have to let off only $6\frac{1}{2}$ million acre feet, so having let off that $6\frac{1}{2}$ million acre feet, we still have storage behind the dam. In other words, the more water we store behind the dam, the less is the percentage of the total storage we have that we need to valve off, or need for flood control purposes. The less the variable is, the more we store. The more we store behind our own dam the less flood control is a factor of the total water which we store or handle.

Mr. YORKE: Yes.

Mr. DEACHMAN: So our ability to control the water we use for power purposes, or the water we let off, then, is based on the amount of water we store, and the more we store behind there, the better our conditions become and not the worse they become as you described it.

Mr. YORKE: That is true only if we control it; if somebody else controls the call of it, it makes all the difference in the world. That is precisely what the treaty does. It gives the right, in various sections, which are spelled out, for all storage in the Canadian basin, and all flood control in the future, so naturally the fact that it is there, means that it is going to be called upon in certain circumstances.

Mr. DEACHMAN: Your argument is that although they only require 6.5, they have a right to call off more than that?

Mr. YORKE: Yes.

Mr. DEACHMAN: What would they call that off for? For what purpose would they flush out our dams?

Mr. YORKE: If an exceptional flood were coming on and as the lower flood plain developed gradually and it becomes more and more necessary to respond to pressure that would build up in the United States to give adequate protection. If it is there, then that will create a condition which will correspond to a demand for it, and the treaty is exceptionally loosely phrased in this regard. In one particular place it talks about *adequate* flood control, and it gives no criteria with regard to it.

In any event, this particular dam—Mica—now has been made another 50 feet higher than previously, and you can store five million acre feet in that; so what is the need for this? This was after the signing of the treaty.

Mr. DEACHMAN: You mean there is no particular value in choosing the lower basin for flood control while there is more than the optimum of power generation behind Mica?

Mr. YORKE: Behind Mica, and the East Kootenay storage. There is plenty to take care of all the legitimate demands that the United States has for flood control.

Mr. DEACHMAN: I think we are looking at more than flood control here. Are we not looking at generation of power at Mica?

Mr. YORKE: If you are looking at generation of power, the more water you can put behind Mica, the more power you can develop. That is A, B, C.

Mr. DEACHMAN: So, when you have a flood, then you would not want to see the water depleted behind the Mica dam?

Mr. YORKE: So far as our requirement with regard to Mica is concerned, it is the development of firm power, and to maximize that firm power there must be a release of the water here in the average flow. That does not conflict in any way with the flood control provisions as I understand them. I may be slightly wrong on that, but I think in general that is correct.

Mr. KINDT: The additional 5 million acre feet would be used for flood control.

Mr. YORKE: No. I was just using that as an argument that since the treaty was signed there has been provided even more storage space back up here. From the point of view of maximizing Canadian interests, we have a magnificent power producing site at Mica with a tremendous head, and the whole problem is to get more water to it. There is only 14 million acre feet a year on the average. That flow at this point—Mica—can be increased by something like 42 per cent by the East Kootenay diversion, which means that much more power.

Mr. DEACHMAN: When the Montreal Engineering Company were here, and the interrelation between the power dam at Mica and the storage at Arrow were demonstrated, the necessity for the two dams and their interrelationship and function was very clear, indeed, as the engineer explained them. What you are telling us now does not jibe with what they told us on the basis of engineering terms, with regard to those two storage areas.

Mr. YORKE: Far be it from me to contradict the Montreal Engineering Company report, but I think one must consider the actual structure of the treaty, and that concerns who has the first call on the water. It makes all the difference who has the first call on the water, whether or not that condition prevails. Under the treaty, the first commitment or first guarantee, if you want to put it that way, is given to the United States. This makes a tremendous difference.

As I tried to explain, from the point of view of maximizing the situation, any re-regulation that might come about because of a certain amount of a flood control situation being mixed up with Mica is quite feasible by phasing in from other sources of power. There is no difficulty whatsoever and you save part of Canada in the process. That is what it boils down to.

Mr. HERRIDGE: Mr. Chairman, I have three or four questions. When we were hearing evidence from the experts from the water resources branch and the consultants who have been employed by the government to give their opinion, generally speaking they admitted that production of power was the first consideration, and the values which derived from it, and that they had not given consideration to the constitutional, the sociological, the human values or the resource values in land, timber, forest, fish and wild life, and so on. I would like to ask you this question, Mr. Yorke: Before you came to your conclusions in writing this brief, did you give consideration to all these other

things which my good friend Mr. Kindt calls the intangible values, which very often are of greater value than cash on the barrel head, or the sacrifice of Canadian sovereign rights and integrity.

Mr. YORKE: The answer is plainly yes. That is the trouble with this treaty; it is a flood control firm power proposition, so far as the United States is concerned, in the short run. And, in respect of these other considerations, from everything I have read about it, this whole multipurpose proposition is infinitely more important, particularly the water. In the future water is going to be vital and we should see to it that every last drop of Canadian water is utilized as we see fit *first*, and then the United States can have it, but not the other way around.

Mr. BYRNE: Would Mr. Herridge mind quoting from the evidence where our government people have denied any consideration of the intangibles.

Mr. HERRIDGE: I have not the record here. However, I am sure the members of this committee remember me putting a question to Mr. MacNabb and the consultants in respect of whether or not they gave consideration to these from the power point of view principally and flood control. As well, you will remember Mr. Martin interjecting after he spoke, saying Mr. MacNabb is a most humane person and would give consideration to these other factors.

The CHAIRMAN: Mr. Herridge, I was quite troubled by your summary of the evidence given.

Mr. HERRIDGE: I will summarize the evidence tomorrow and, if I made a mistake, I will correct it. I am sure of what was said because I remember Mr. Martin coming to Mr. MacNabb's rescue in this respect.

Mr. Yorke, the fish and game federation of British Columbia, the interior rod and gun clubs and the west Kootenay rod and gun clubs have given a great deal of consideration to the question of these dams and their effect on our economy. I think they spent about \$500 getting this brief prepared. This brief I have is entitled "Recreation in the Columbia River Basin in Canada"; it has been endorsed by the fish and game federation of British Columbia, the interior rod and gun clubs and the west Kootenay rod and gun clubs, and it has been forwarded to this committee. If I may, I would like to read one paragraph from this brief. I am receiving a good number of letters expressing concern about this question. I am reading from page 9 under the heading "reservoir clearing", which reads as follows:

All vegetation must be cleared from the present low water level up to 10 feet of elevation above the maximum storage level.

And then, in black type:

This is an absolute necessity if use is to be made of the reservoir for any purpose mentioned in this brief other than water storage and power generation.

Do you support the requests of these rod and gun clubs that these reservoirs should be completely cleared of all vegetation?

Mr. YORKE: Yes. I have read the testimony so far as the Arrow dam is concerned and, so far as I was concerned, I was struck by the fact that every conceivable type of organization in that entire valley was opposed to the construction of the High Arrow dam. And, since that time there have been at least three things that have happened which made it even far less of a sort of a kingpin to this treaty. First, it has at least doubled in cost. Second, there have been 5 million additional acre feet of storage put up at Mica and, thirdly, it is quite possible to phase in other power, and this sort of argument about re-regulation has been shot full of holes.

Mr. LEBOE: It may be helpful if I referred to page 362 of the minutes of proceedings in which Mr. Williston dealt with the very subject of vegetation. I am giving this reference in order that members may refer to it.

The CHAIRMAN: Thank you.

Mr. HERRIDGE: I would like to refer to page 32 of the brief at this time under the heading "Factor for the Aluminum and Other Industries in the State of Washington" in which you deal at some length with the development of industry in the United States and in Canada, together with the employment situation generally. Mr. Yorke, would you mind elaborating on that page?

Mr. YORKE: Yes, I would be pleased to do so.

Mr. HERRIDGE: It will not be necessary for you to read the whole page. I just wondered what you had in mind when you wrote that page.

Mr. YORKE: I have here a clipping from the *Toronto Globe and Mail* of a few days ago which says:

U.S. Firms plan Aluminum Plant. Two large U.S. mining and manufacturing companies, one of them French controlled, plan to build a new aluminum metal reduction plant at an unnamed U.S. location.

Although I am speculating, the point is that there is every likelihood there will be increased production of aluminum down here under the terms of this treaty because, as pointed out, in the analysis made here, the power is going to be in the United States, and I think this is something we very much should bear in mind. There have been all kinds of figures on what power is going to cost in the United States, but you must remember all this talk about four mills and five mills and all the arguments in connection with that deal only with one half; there is the other half which is less than one mill. What it is going to boil down to is there is going to be a 20 per cent increase in firm power production for the United States at the very low rate of $2\frac{1}{2}$ mills at the very most.

Electricity in the aluminum industry is, in effect, a raw material; it is not used just for turning wheels. Therefore, the cost of electricity is a very significant part of the cost of production. This is an industry, as you know, which is highly competitive, and any advantage that can be gained in that particular regard is going to be very much reflected so far as the price of power is concerned. It is going to attract more industry down there.

There is a table quoted at page 32 which shows historically what has been the case. It shows the wage earners and the value of the payrolls in the Columbia river basin in the United States are 20 times what it is in Canada. One cannot say this is all because of power but you can say a lot of it is. That is the reason this union is fundamentally concerned from the point of view of industry.

I think it should be pointed out that there is nothing in this treaty which guarantees in any way, shape, or form that there ever will be any power produced in Canada. There is nothing in it. We are not committed to do that. It might happen and it might not, and we may get what is produced and we may not. And, the fact they are talking of a capacity to produce at Mica around 1.8 million kilowatts very strongly suggests that it is going to be for peaking purposes which will satisfy United States demands. And, the likelihood is that what might be developed at Mica will go into the United States as well. That is a likelihood but it cannot be proven at this time.

Mr. LEBOE: Would that result from the McNaughton plan as well?

Mr. YORKE: It certainly would not.

Mr. LEBOE: I cannot see why not. If the power is generated one way or the other it is going to be the policy of the hydro, is it not?

Mr. YORKE: Well, that is—

Mr. LEBOE: Sure it is.

Mr. YORKE: I should not have been so quick with my answer. Of course, that depends on which particular government is in power and which particular policy is being followed in British Columbia at that time.

Mr. LEBOE: We will get this developed in any event; is that right?

Mr. YORKE: We may get it developed and we may not.

Mr. HERRIDGE: Mr. Chairman, I have two further questions I should like to direct to Mr. Kennedy in view of the fact he is a senior officer of a trade union.

These questions relate to a matter which was discussed when Mr. Bonner and Dr. Keenleyside were before this committee. I refer to an act to establish a British Columbia Hydro and Power Authority which passed third reading on March 10, 1964 in the British Columbia legislature.

I should like to refer to section 56, subsection 1, which reads as follows:

Where a conciliation board has been appointed under the Labour Relations Act to deal with a dispute between the authority and one or more of its employees or a trade-union, the report of the conciliation board is binding in every respect upon the parties.

Section 2 of that bill reads as follows:

No person shall declare or authorize a strike and no employee of the authority shall strike and the authority shall not lock out any employee or employees.

Mr. Kennedy, I ask you this question because I was very surprised to read this proposed section and because Mr. Bonner, when I asked him if he knew of any other acts covering public utilities in respect of labour relations similar to this, said he would look it up and referred the matter to Dr. Keenleyside who passed this question off rather quickly by saying that the act at that time had not been proclaimed. What is your opinion, as an officer of a trade union, of the introduction of this type of legislation in Canada?

Mr. LEBOE: Mr. Chairman, before the witness answers the question, I should like to ask what this has to do with the Columbia river treaty.

The CHAIRMAN: You wish to know in what way this question is relevant to the discussion under consideration?

Mr. LEBOE: That is right. This question refers to other legislation which has nothing to do with the House of Commons.

The CHAIRMAN: I was troubled when these matters were brought up at earlier hearings, and you will recall objections at that time, Mr. Herridge.

Mr. HERRIDGE: Mr. Chairman, the attorney general of British Columbia recognized my right to ask the question, dealt with it briefly, and then referred the matter to Dr. Keenleyside. I am asking the question of this official of a trade union because trade unions are all interested in these matters.

The CHAIRMAN: I am not going to prevent you asking the question, Mr. Herridge, because it has already been raised but I think it is fair to recognize the point made by Mr. Leboe that this is actually an irrelevancy in respect of this hearing. This has nothing to do with our determination of whether or not this is a good treaty. Surely any question in respect of legislation of any province is not the business of this committee.

Mr. HERRIDGE: Mr. Chairman, I believe the members of this committee have a responsibility to the working people of Canada, and when a treaty is before the committee I feel it is our duty to see that people in authority act in a proper manner.

Mr. LEBOE: Mr. Chairman, I should like to point out that the arrangements supported by these people would exist if the British Columbia hydro were

carrying out this construction and therefore this question is absolutely irrelevant.

The CHAIRMAN: Mr. Leboe I must completely agree with you. I thought that these questions asked in an earlier hearing were irrelevant, but in fairness to Mr. Herridge I think he should be allowed to continue. Perhaps we can conclude this matter with your question, Mr. Herridge and then you can proceed along another line of questioning if you wish.

Mr. HERRIDGE: Mr. Chairman, my next question deals directly with construction.

Mr. Kennedy, would you please give us your opinion in regard to this proposed legislation?

Mr. KENNEDY: I certainly do not appreciate being the centre of a controversy within the committee itself; however, in answer to your question, I might say that this is the first time I have encountered anything like this, where workers will be denied a fundamental right. It appears to me that this legislation will apply to individuals who are not usually classed as working for a public utility and I refer to labourers and construction workers. This is the first time in any province to my knowledge that this right will be taken away from those people.

Mr. HERRIDGE: Mr. Chairman, I raise this matter because the joint council of union and hydro power authority represents 5,000 employees.

The CHAIRMAN: I do not want evidence on the record in this respect.

Mr. HERRIDGE: A telegram has been addressed to this committee.

The CHAIRMAN: Yes, but I am not interested in any evidence introduced in this way.

Mr. HERRIDGE: But surely they would not have introduced this evidence before this committee had they not wished this committee to consider that evidence.

The CHAIRMAN: Any evidence that is to be given to this committee will be given *viva voce* and not by telegram. Does anyone else wish to ask questions?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, may I interject at this moment? You will recall that a previous witness assured this committee that this particular legislation had the support of the unions affected.

The CHAIRMAN: I do not recall that evidence, Mr. Cameron. If you are attempting to correct something that is in error I think your point is well taken.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): If there is a mis-statement on the record, and one might assume there is from some of the statements that Mr. Kennedy has made, this fact casts a certain reflection on the rest of the evidence given by that witness.

Mr. LEOE: Mr. Chairman, the Peace river power project is operated in exactly the same way and has been operating for some time very successfully under these arrangements which were copied I believe from a project which took place in eastern Canada. These arrangements have worked very very well. I hope that information will be of some help.

Mr. HERRIDGE: Mr. Chairman, is my understanding correct that you will accept evidence from representatives of these 5,000 employees?

The CHAIRMAN: We will accept the evidence if they come here and present it.

Mr. HERRIDGE: If those representatives appear before this committee their evidence will be accepted?

The CHAIRMAN: This is really a matter for the steering committee and the whole committee to determine, but we certainly have not endeavoured to prevent anyone from appearing and giving evidence.

Mr. PATTERSON: Perhaps it should be stated that this evidence will be received and accepted if it is relevant to our discussions.

The CHAIRMAN: I think that is a fair statement and I am sure Mr. Herridge would agree with it, because we must not consider a lot of irrelevancy.

Mr. HERRIDGE: Mr. Chairman, if the representatives of these 5,000 men come here and wish to protest this legislation I think this committee should hear those representatives.

The CHAIRMAN: Mr. Herridge, I do not think this committee should inquire into labour or other legislation which is entirely within provincial jurisdiction.

Mr. LEOBOE: That is right.

The CHAIRMAN: We have no right to consider provincial legislation whether we like it or not.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman again I must point out that a previous witness answered a question in respect of this legislation and made certain statements. If those statements are proved to be incorrect, then I suggest certain doubt is cast on the other evidence presented by that witness to this committee and the members of this committee are seized of that fact.

The CHAIRMAN: Mr. Herridge have you concluded your questioning?

Mr. HERRIDGE: I do not have any other questions, Mr. Chairman. I should like to personally congratulate the union in question and their representatives, Mr. Bruce Yorke and Mr. Kennedy for what I consider to be a very lucid and logical explanation of the unions point of view in respect of this treaty.

The CHAIRMAN: Does anyone else wish to ask a question?

If there are no questions, perhaps we might now adjourn.

Mr. HERRIDGE: Mr. Chairman, I am sorry that Mr. Byrne was one of those individuals who assisted in stopping me from further discussing this very important matter.

Mr. LEOBOE: That is a completely uncalled for statement.

Mr. BYRNE: Let Mr. Herridge make any observations he wishes. Mr. Byrne will look after himself.

The CHAIRMAN: I think many of the observations which have been made during the past two or three meetings have been unfortunate. The degree to which we can avoid pursuing this type of observation has a direct bearing on the level of our considerations.

I am sure we are all grateful to these gentlemen for being with us today and for presenting their brief early enough that all members could give it thorough consideration.

Some hon. MEMBERS: Hear, hear.

The CHAIRMAN: Shall we now adjourn until tomorrow?

Mr. KENNEDY: On behalf of the union I would like to express our appreciation to the Chairman and to members of the committee who have shown interest in our presentation.

The CHAIRMAN: Gentlemen, we will adjourn at this time until Tuesday, May 5, at 10 o'clock. Our witness on that occasion is a representative or representatives of the United Fishermen and Allied Workers from Vancouver, British Columbia. I wonder if we could all try to be here at 10 o'clock sharp.

HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964

MAY 19 1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 19

TUESDAY, MAY 5, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

Mr. T. E. Parkin, Public Relations Director and General Organizer, United Fishermen and Allied Workers' Union, Vancouver.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (Okanagan-	Macdonald,
Byrne,	Revelstoke),	MacEwan,
Cadieux (Terrebonne),	Forest,	Martineau,
Cameron (Nanaimo-	Gelber,	Nielsen,
Cowichan-The Islands),	Groos,	Patterson,
Cashin,	Haidasz,	Pennell,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

CORRECTION (English copy only)

Proceedings No.14—Monday, April 27, 1964.

In the Minutes of Proceedings and Evidence—

Page 782, Line 47:

For "when" read "if".

Page 783, Line 1:

Delete "(c)" and insert "and clause V"

Page 783, Line 40:

For "for" read "after".

MINUTES OF PROCEEDINGS

TUESDAY, May 5, 1964.

(34)

The Standing Committee on External Affairs met at 10.00 a.m. this date, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Forest, Gelber, Herridge, Kindt, Leboe, Macdonald, Matheson, Nesbitt, Patterson, Ryan, Turner, Willoughby—(18).

In attendance: Mr. T. E. Parkin, Public Relations Director and General Organizer, United Fishermen and Allied Workers' Union, Vancouver.

The committee resumed consideration of the Columbia River Treaty and Protocol.

The Chairman reported receipt of a telegram from Premier W. S. Lloyd of Saskatchewan.

Mr. Ryan asked for, and obtained, permission to make certain corrections in the evidence of the committee meeting of April 27, 1964 (Issue No. 14).

The Chairman introduced the witness, Mr. Parkin, who summarized his Union's brief opposing the Columbia River Treaty and Protocol, and was questioned.

The Chairman thanked the witness for bringing the views of his Union to the attention of the committee.

At 11.20 a.m. the committee adjourned until 9.00 a.m., Wednesday, May 6, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

TUESDAY, May 5, 1964.

The CHAIRMAN: Gentlemen, I see a quorum. I would like to report that I have received only one communication, other than a bill, and it was a night letter from Premier Lloyd of Saskatchewan, which letter I shall bring to the attention of the steering committee at its next meeting.

Our guest this morning is Mr. Thomas Edwin Parkin, of Vancouver, British Columbia, who comes here in his capacity of public relations director of the United Fishermen and Allied Workers Union.

Mr. KINDT: I am sorry, but I am afraid I did not get the name.

The CHAIRMAN: The name is Thomas Edwin Parkin. Mr. Parkin is a resident of Vancouver, British Columbia, and he is public relations director of the United Fishermen and Allied Workers' Union.

Mr. KINDT: Would you please spell the last name?

The CHAIRMAN: P-a-r-k-i-n. He is also general organizer of this union, but he of course comes here to-day in his capacity as public relations director. Now, Mr. Parkin. You may remain seated.

Mr. THOMAS EDWIN PARKIN (*Public Relations Director and General Organizer of the United Fishermen and Allied Workers' Union, Vancouver*): Perhaps I could read this a little more readily if I stood. I would like to say at the outset, Mr. Chairman, and gentlemen, that we consider the external affairs committee to be one of the most important committees in the house by reason of the nature of the work that they must contend with, and we consider the Columbia river question to be one of the most vital to come before the house for some considerable period of time.

We very much appreciate this opportunity to express our views to your committee, and I shall try to be as brief as possible. At the same time, having travelled this distance, and for reasons which I shall state in my presentation, I consider that we are dealing with an issue of importance to every Canadian. I do not need to emphasize that point.

Let me say at the outset that while we have filed a brief with the committee, I do not intend to read it in its entirety, but only certain sections thereof. There are some points I would like to emphasize. There may be some repetition, but I shall try to avoid it. However I shall explain at the start that we associate ourselves fully with the brief submitted yesterday by the International Union of Mine, Mill and Smelter Workers. I say that because as members of the Columbia river committee for Canada, which shall later appear before this committee, I understand, we are fully aware of the content of their brief, and for that reason we left out of our own brief some of the technical and engineering problems inherent in the proposed treaty.

Perhaps I am anticipating a question here by members of the committee in pointing out that it may seem a little odd that commercial fishermen should be concerned enough about the Columbia river treaty to send a representative here to appear before your committee. Actually, there is nothing unusual in this if we understand the background of it.

In May, 1950, there was an attempt made by power interests to take over the Fraser river for power. One of the dams which they proposed to build

was the Moran dam which would have been over 700 feet in height—actually, 720 feet I believe was the engineering figure on it. That dam would have wiped out an important part of the salmon runs on the Fraser river for all time. There are people who claim that power—and certainly we do not discredit the necessity for power in British Columbia or elsewhere in Canada—should be considered as more important by far than our salmon resources.

I would like to touch briefly on that matter because it explains the concern of commercial fishermen over the type of treaty we shall have with the United States, and the type of development we would have on the Columbia river. The salmon industry, of course, represents an important part of the economy of British Columbia, one which provides jobs for some 15,000 men and women.

Salmon perhaps is the most important fish of all for food. In a food hungry world scientists tell us if we are going to satisfy the needs of our hungry people, we are going to have to look increasingly towards the sea.

Salmon is a product which does not require human attention in the way of seeding, planting, and cultivation. It has developed in its own way for centuries. We really need to give it but very little attention, but should we fail even in that respect it would spell ruin. And that leads me to the point of commercial fishermen becoming concerned with the Columbia river.

It would not be enough for us simply to say that we cannot have power on the Fraser river unless at the same time we can offer to the public an alternative.

Since 1957 I have had the honour to be a witness before the Fraser river board. Mr. James Sinclair, a former minister of fisheries of the federal government, set up the fisheries development council. This council has the responsibility of co-ordinating all material available in support of our game and salmon resources on the Fraser.

If you turn to the International Joint Commission reports, you will see that it is obvious even from a cursory study that we have the necessary power on the Fraser river, but we certainly have alternatives. I do not profess to be an expert, nor do I profess to have read all the International Joint Commission reports. They are very voluminous; they are tremendous things containing graphs and engineering reports of possible dams that could have been built on the Columbia river system in Canada. However, I can say that I have made a fairly thorough study of the International Joint Commission summary reports, and I think it has become quite clear that in Canada on the Columbia river we could have sufficient power to serve the needs of British Columbia in the foreseeable future.

On this basis we appealed to the federal government as early as 1957 when we passed a resolution at our annual convention asking for the development of the Columbia at Mica creek. I have with me a pamphlet which was issued at that time and distributed very widely both from a booth at the P.N.E., and to various fish and game clubs and organizations before which we appeared. It is called the "Fish Story", and it is also called "I'll Be Dammed". It shows the fisheries position with respect to this huge river, and in this pamphlet we say that the matter is a question of fish versus power. We say that with methodical use and development of Mica creek by provincial and federal government, this would satisfy our power needs for several years, and that we would still have a salmon industry. We felt that way in 1957 and we feel the same way today.

Before getting off this salmon question—and again there is a relationship—I might say here that the salmon resource in 1958 returned a greater tonnage of protein food to the Fraser river than all of the Cariboo beef herds. These

are actual statistics which can be checked with the federal Department of Fisheries. In that same year the Fraser river saw a greater return of salmon than the Columbia river has had in the past half century. Since the dam construction on the United States side on the Columbia began, the salmon runs declined proportionately. Despite an expenditure by the United States government in the order of \$125 million for fishways and fish ladders, we still lost the salmon on the Columbia river. We believe it would be a tragedy to see that repeated on the Fraser river.

It was then that our study of the International Joint Commission report led us to believe that this is the alternative for British Columbia and is the logical place to start developing the maximum amount of power in Canada for Canada.

I would like to say here that our union considers the contribution made by General McNaughton an outstanding one, not alone his war record which was a brilliant one, but the fact that in every capacity in which General McNaughton has served this nation, he has placed not self interest or political interest, but rather the interest of Canada first and foremost. We believe when the history of this period of Canada is written, General McNaughton's name should have a very honoured place there. We were, therefore, tremendously surprised, following this study of the International Joint Commission reports, and our knowledge of the potential of the Columbia, when Premier Bennett in British Columbia announced that the major points in the International Joint Commission studies would be scrapped. I refer to where the International Joint Commission commissioners had naturally agreed on a program which would not include High Arrow, and which would not include Libby dam. We were surprised to find that we have a treaty before us which takes into account both of those conditions. We felt this only could be explained by political expediency on the part of the premier of British Columbia. I say that in all sincerity, because how can we scrap 14 or 20 years of study by engineers and commissioners, both on the Canadian and the United States side, and turn to a treaty that would discount and discredit the work that had gone into that study.

At this point I would like to quote from a letter which appeared in the *Globe and Mail* of January 23, this year; it is over the signature of James G. Ripley. I think it expresses our opinion on this particular phase of my submission. He says here, and I quote in part:

The price to be paid for our power is a red herring that has nothing to do with the real issues.

We consider the role of the press has been a very serious one during this entire period of the treaty negotiations. We feel they have failed Canada very seriously in their failure to place before the people the issues and to report properly on both sides of this debate and discussion. In other words, they have left the public in Canada completely confused in respect of the real issues inherent in this proposed treaty.

Mr. Ripley went on to say:

—the Americans largely ignored the power aspects in their thinking if not their actions, and negotiated a water development treaty for the United States without our inexperienced Canadian team realizing what was happening. The Americans wanted, and managed to obtain, complete control over and unrestricted use of Canadian water from the Columbia for all time. For the use of this water, they pay nothing.

The tragedy for Canada is that we have lost control of a vast source of water, which would have become exceedingly valuable to us in the future, in exchange for a sum of cash, the only apparent value of which

is to enhance Premier Bennett's political reputation. In other words, Canada is still making the fundamental mistake of selling its resources for cash rather than applying them to develop this country.

Finally, he winds up by saying:

The politicians involved are waving the treaty in the air and calling themselves heroes for selling off a chunk of Canada. It may be fortunate for them that they will not be around when the water shortage on the prairies becomes acute. Canadians then may be describing their action in somewhat less complimentary terms.

Mr. Chairman and gentlemen, we say amen to those sentiments.

The United States requirements—to sum up these very simply—primarily were sustained and controlled flow of the Columbia river in the hope of maintaining maximum power at site at dams already constructed on the United States side of the river. Secondly, of course, they wanted and needed badly flood control, because inherent in this flood control program also was the possibility of a huge reclamation program in the lower parts of the river where they could have reclaimed a good deal of land for industrial and residential use. Finally, of course, but in our opinion by no means the least important, they wanted water.

It was mentioned here in the submission yesterday that there was even consideration being given to a \$100 billion diversion program which would bring water from Alaska and the Yukon rivers down through the trench and into the drought areas of the United States. Do not believe that is a fantastic proposal at all. With developments taking place as they are, and with the tremendous population explosion. I think it is quite within the realm of possibility that within 50 years, or less, this very project may be considered and become a reality for the United States. Meanwhile, what they have obtained in the proposed treaty has laid that program ahead for a considerable period of time because we are doing with the Columbia exactly what they have been considering doing at a tremendous expense to that country.

I want to say here, too, Mr. Chairman, that in no sense are we in opposition to the United States, or anti-American. I do not see why someone testifying always has to preface his remarks by assuring people he is not anti-American; but it seems this is the thing to do these days. If you fight for a Canadian right, you automatically become anti-American. I say it is not anti-American to preserve Canada's sovereign rights.

Mr. PATTERSON: On a point of order, we have before us the brief that was presented for our consideration and study. I understand these summaries are supposed to be just an emphasis of particular points in the brief, and not a presentation of other material. I would like your ruling, Mr. Chairman, on that particular point of order.

Mr. GELBER: Mr. Chairman, I would like to speak to the point of order. Yesterday, under the guise of a summary we had a presentation lasting several hours. It was my understanding that anybody who wanted to submit a brief could do so and the committee would invite certain witnesses to appear; those witnesses would make a summary of a brief which had been circulated. Now, we are having a brief submitted and we are having this committee used as a platform.

I think, Mr. Chairman, when a witness begins his summary, you should give him a time limit, a definite time, and we should not have alternative briefs submitted when we are supposed to be having a summary, and we should not have summaries that go on for hours. I believe the proceedings should be more orderly. In fairness to the witness and to the committee, I think when a witness starts a period of time should be set for the summary and then it should be up to the committee to ask questions.

Mr. HERRIDGE: Mr. Chairman, in respect of the point of order which has been raised, may I say that the presentation made yesterday, including the showing of pictures, took about 1 hour and 15 minutes.

The CHAIRMAN: Now, Mr. Herridge, that is not correct.

Mr. HERRIDGE: I beg your pardon; I mean two hours and 15 minutes, and then we had the opportunity of putting questions. The matters under discussion yesterday were very important and it was obvious when the witness was presenting his review of the Columbia river treaty that he held the interest of all members of this committee. I personally know that they were very glad to get this information. Several members told me how much they enjoyed Mr. Yorke's presentation yesterday.

Now, Mr. Chairman, we have plenty of time today and I think we should permit this witness to give his general views in respect of the brief which has been presented and then we will have ample opportunity to put questions. I do not see any necessity for a reduction in the length of time allowed to Mr. Parkin to give his summary.

Mr. GELBER: The summary given yesterday in respect of the brief was very repetitious. Really, it was not a summary. We allowed the witness the courtesy of making a summary to refresh our memories, but it was very lengthy. I think we are facing the same problem today. As Mr. Patterson said, we are getting away from the brief. In my opinion, the witness should make a summary of his brief.

Mr. KINDT: Mr. Chairman, I would say Mr. Parkin is doing a swell job. We have asked him to come before this committee and to give evidence. But, when something is said by Mr. Parkin which does not fit too well or rings a bell with some of the members of the committee they object.

The CHAIRMAN: Now, just a minute, Mr. Kindt.

Mr. KINDT: Wait until I am finished.

The CHAIRMAN: In my opinion, it is appropriate for any member of the committee to raise any point of order he sees fit to raise, if it is done in a good parliamentary fashion.

Mr. KINDT: It is a red herring.

Mr. PATTERSON: It is not at all.

The CHAIRMAN: Mr. Patterson raised the point that the presentation given yesterday was not a summary and it took a long time, being repetitious as well. Mr. Gelber raised another point, that under the guise of a summary new evidence is being presented which was not contained in the material submitted.

Gentlemen, I think this matter should be discussed by the steering committee and I do not intend at this time to confine our guest. I spoke to him before this meeting and asked him to be kind enough, without prejudice to his case, to bring his summary fairly neatly to a conclusion so we could proceed with questioning at a fairly early time.

Now, Mr. Parkin has been only 20 minutes up to this point, and I do not think we are in danger of running to the length of time it took yesterday to present the summary. Although the summary presented yesterday was interesting it was quite repetitious and I do not think it touched on anything new. It could be that this summary was of great value to the committee, but it was not in accordance with the intention that the committee expressed through its steering committee and to the committee as a whole. The purpose of asking representatives to present a brief was so that it could be studied in advance and then without losing too much time we could get right into the questions.

However, I do not think it is fair to cut our guest short this morning. I do not expect he will be very much longer in completing his summary.

Mr. BREWIN: Mr. Chairman, may I make an observation on the point of order raised by Mr. Gelber?

Mr. GELBER: Mr. Patterson raised the point of order; I made a comment on it.

Mr. BREWIN: You made a different point of order. Mr. Chairman, you said this would be discussed by the steering committee. I, not being a member of the steering committee, would like to make the observation that while the brief is helpful, and we have asked people to produce briefs, surely we are not going to narrow the thing down to the point that if in addition to the brief the witnesses have some useful relevant information we are going to restrict them from giving that information.

The CHAIRMAN: I am sure that is right, Mr. Brewin, but it seems to me the purpose of the submission was that the witnesses, whoever they might be, would say what they had to say in that extensive document. The brief we received yesterday was an extensive one, consisting of, I think, 100 pages and, therefore, it would not be expected that on their summary they actually would present new material. It seems to me if any member of the committee wishes to elucidate new material from the witness that can be done by appropriate and relevant questions.

Mr. BREWIN: I would like to add this comment, Mr. Chairman; I think you have shown great wisdom in extending a certain amount of latitude in the past and I hope you continue to do so.

Mr. LEBOE: Mr. Chairman, I have one observation to make with respect to this point of order, which I think is relevant.

I would like to call attention to the expression that was used by Mr. Gelber, namely the using of this committee as a platform. I think this is a serious situation. I noticed there were two remarks made about the premier of British Columbia which, I am sure, the witness could not verify by saying he actually knows it to be a fact. Innuendoes of this type in this committee are deplorable.

With regard to the situation we are faced with today, I, for one, think we should stick to the procedures we have been following in the past and, if there is any further information the members wish to get from the witness they can bring this out by putting questions. I do not go along with these long discourses and the bringing in of matters which are not at all relevant to the proceedings.

The CHAIRMAN: The Speaker of the house drew to my attention the rules of the special committee on procedure. I think reference was made to 39A but perhaps Mr. Brewin can assist me in this regard. However, I have reference to the rules relating to the questions at orders of the day time. Actually, there is nothing very new in this. This really was a guide in respect of what was regarded as good parliamentary practice. I am sure you will agree with me when I state that we should stay away from anything which is political or controversial.

Mr. HERRIDGE: Instead of the word "political" you mean "partisan".

The CHAIRMAN: Yes.

Mr. KINDT: Mr. Chairman, we have taken over ten minutes of our time now and I would suggest we get on with our business.

The CHAIRMAN: Mr. Kindt, I am seated now and I do not think that remark was necessary.

Mr. BYRNE: I was quite interested in the witness expounding his theories whether or not this is a sellout in general terms because, as you know, the witness has said he has no technical knowledge to prove this case; he is not trained in international or civil law. He has been reading excerpts from papers, one in particular a letter by Mr. Ripley. As you know, Mr. Ripley has appeared before us and at this moment we are not interested in Mr. Ripley's assessment of the political situation with respect to this problem.

I think the witness should be required to give a summary of his presentation and keep away from the thoughts of others who have appeared before the committee. In this regard I sincerely believed we should ask for a summary and then in the question period we could elucidate such further information as members feel is required. After all, Mr. Ripley is a journalist who perhaps stakes his career on this and we can understand him perhaps giving statements which are not entirely in accordance with the facts.

Mr. BREWIN: Shame! That is a most discourteous remark directed toward a responsible person.

Mr. HERRIDGE: Mr. Ripley is a most respected journalist.

Mr. KINDT: That was more biased than any other statement which has been made.

Mr. BYRNE: I am prepared to hear Mr. Ripley but I do not think a witness who has come from the United Fishermen and Allied Workers' Union in British Columbia should be repeating Mr. Ripley's argument.

Mr. HERRIDGE: Mr. Ripley is an engineer of some standing.

Mr. MACDONALD: Mr. Ripley appeared before the committee.

Mr. LEBOE: Let Mr. Ripley speak for himself. I think the point is well taken.

Mr. RYAN: Mr. Chairman, I think the point is well taken. I feel we are hearing a lot of misconceptions.

The CHAIRMAN: Gentlemen, I do not wish to interrupt, but surely the main reason for people being called before this committee is to give each person an opportunity to present something that is unique, fresh and constructive, making a contribution. We have agronomists, soil experts, dam experts, engineers and economists appearing before us from time to time. Today we have a representative of the very important fishing industry. Surely, that which we are interested in today is that which fishermen are interested in and not political implications or general policies relating to other matters economical and engineering. I have felt it my duty as Chairman to allow a certain amount of latitude to all representatives and I do not wish to be charged at some later date with unduly confining a witness. I am sure we will have no further difficulty.

Mr. PARKIN: Thank you, Mr. Chairman and gentlemen. I appreciate the discussion that has taken place here. It is not my intention to continue at great length, I can assure you. My conclusion will not take too much time.

Before this discussion commenced I mentioned a question which was considered to be political. Unfortunately, the whole discussion in respect of the Columbia river treaty is of necessity a political one and it cannot be avoided. I do not intend, nor did I intend in any sense, to be partisan in that regard. Unfortunately, we are faced with this situation at the present time and somehow or other this committee and the House of Commons have to resolve the problem.

Canadians seem to have a solution to the major problems of the United States in respect of the Columbia river. We can accomplish flood control and a controlled flow of the river. The question to be asked is, in what way should this program be put into effect? We suggest to the committee that

the McNaughton plan is by far the better plan because it does represent a plan that is in Canada's interest and retains control of that river for Canada with a possibility of an increase in jobs and industrial development, and all the other things that accompany this development. This is an extremely important matter to the fishermen and workers in this country.

I may not be an engineer or an expert but I am a Canadian citizen and just as concerned as all the experts may be and perhaps a lot more than some of them in respect of the actual decisions that will be made affecting Canada's sovereignty and the future of this country and its natural resources. I want to touch upon that subject a little more fully.

First, I should like to turn to page 3 of the brief. In this section we point out that there is a very real possibility of another power shortage in Canada despite the building of the Peace river development. In this section of the brief, in the third paragraph, we have the following to say:

The demand for energy in Canada is growing so rapidly that the country's huge hydroelectric resources will be fully utilized in a lifetime, says D. A. Hansen of Calgary, president of the Canadian Electrical Association. Mr. Hansen, general sales manager of Calgary Power Ltd., was speaking to the eastern zone meeting of the association. 'No one in our industry would say that the millions of horsepower available from the watersheds across the nation do not add up—to us now—to a staggering total', said Mr. Hansen, 'But there isn't one of us here today who would not say these will be used up in the lifetimes of some of us'.

We suggest again that if the Columbia river is not utilized to its maximum then we will again face power shortages which will bring pressure to bear on the Fraser river, and again we are going to face the same serious threat to another resource that is also important to our country.

At page 4 of our brief we refer to Canada's sovereignty and full employment. I should like to read this section.

We do not interpret a good neighbour policy to mean that Canada must surrender its birth right to the United States. Already, a large part of Canada's natural resources are owned or controlled by United States firms with head offices located across the border. Some of the major lumber and pulp industries with tree farm and forest management licences are United States owned and controlled. This is true with fishing, mining, oil and natural gas.

Speaking to the Canadian chamber of commerce in Calgary in October 1960, James E. Coyne, then governor of the Bank of Canada had this to say:

'No other nation so highly industrialized as Canada has such a large proportion of its industry controlled by non-resident companies to quote the restrained language of a Dominion Bureau of Statistics publication. I prefer to put understatement behind us and suggest that no country in the world with anything like our relative stage of development has ever had such a degree of foreign domination, or even half or one quarter the degree of foreign domination.' He went on to point out that Canadian industries were from 50 per cent to 80 per cent owned or controlled in the United States.

We suggest Mr. Chairman that is extremely important because the proposed Columbia river treaty would place us even further under the domination of the United States and in a more insidious way. We suggest in our brief that industry today, particularly manufacturing and secondary industry must have power. The draft treaty proposes the surrender to the United States of control

of one of the greater power producing rivers on the continent. In fact we are putting their hand on the master switch. We ask just how neighbourly can we get.

Finally, on the same page, under the heading "Canada's Natural Resources—A Heritage or a Political Pawn" we suggest the following. Before I read this paragraph I should like to point out that in the fishing industry we have had a tremendous amount of experience with international treaties and the negotiating of them, not that we physically negotiated them, but we have had to suffer from the results.

I will read this paragraph and then explain an immediate problem that we face to show the relationship between the two, and I think it is important for the committee and their study of the present treaty to understand the kind of negotiations which are taking place.

The paragraph reads as follows:

Canadians are growing tired of witnessing her representatives entering into international negotiations with a 'cap-in-hand—sorry for the inconvenience' approach. They are growing even more weary of having these 'negotiators' return home wearing a barrel, having lost their shirts in the game. As one delegate to our annual convention stated it 'we go into the game with a pat royal flush and get bluffed out by two small pairs'. In the case of the Columbia river negotiations, we held all the cards.

Head waters of the Columbia and its tributaries originate in Canada. The control area where both storage and power may be achieved is on the Canadian side of the border. The International Boundary Waters Treaty of 1909 gave Canada 'the exclusive jurisdiction and control over the use and diversion, whether temporary or permanent, of all the waters on its own side of the boundary which in their natural channels would flow across the boundary or into boundary waters'. Why then this hesitancy to assert our legal, and in this instance, moral rights? Has the United States again used the 'big stick' approach to negotiations which they have found so effective in the past? Did they threaten certain reprisals in the form of embargoes or tariffs if Canada took a tough stand on the Columbia question? And if they did was there any real basis for our negotiators running for cover?

I have here a clipping from the Vancouver *Sun* of Wednesday, April 29, one or two days after our brief was sent to this committee. This is a Washington date line and the title of the article is "Big Stick Waved at The Fishing Industry". The subheading is, "Is Boycott of Exports Threatened if U.S. Fishing Curtailed Here". Members of this committee are aware that the 12 mile limit treaty is now before the Senate here in Ottawa. The United States has told us, as they have done in negotiations in the past, that if we take a firm position on the 12 mile limit on the basis of headland to headland, which would include some of the most important fishing areas of Canada and in the industry of Canada, they will respond by vertain embargoes and reprisals that will make us sorry that we did so.

We do not feel this is the kind of negotiating that should take place between two friendly neighbours, two countries which have had a long history of a free border stretching from one coast to the other. We do not think these are the kind of negotiations we should conduct between these two nations.

We use this as an example because we believe, once again, that the big stick was used by the United States in the sense that we came up with a treaty that gives away to that country some of Canada's priceless heritage and a lot of our sovereign power.

Finally, Mr. Chairman, I would like to leave with the committee two or three questions. I am quite sure the committee will have the answers to them because they are inherent in the conditions of and the protocol to the treaty we have been discussing.

Why is Canadian storage of water to be operated to the United States advantage under United States orders, while United States storage at Libby, which might be used to drive Canadian generators in the Kootenay river is not required to operate on Canadian orders?

Power from the Columbia treaty will cost Canadian consumers four times the cost to United States consumers. Is this equitable?

Is it reasonable for Canada to accept a steadily decreasing value in downstream benefits, while the United States is to receive a steadily increasing value in vital water supplies for industrial and domestic use?

Is it not improvident to surrender sovereign water rights on two major Canadian rivers—the Columbia and the Kootenay—to a foreign country forever?

We leave those questions with the committee and we believe the answers to them are self-evident.

We suggest, Mr. Chairman, in all sincerity, that this committee should recommend scrapping the proposed treaty and should instead reopen negotiations on the basis of the McNaughton plan for Canada in the interest of Canada and of future Canadians.

I would like to thank you, Mr. Chairman, and the committee for the courtesy that has been extended during this hearing and to express the hope that the committee's findings, as I am sure they will, will be in the interest of Canada and Canadians.

Mr. KINDT: Mr. Chairman, may I lead off by asking Mr. Parkin another question on fishing?

Mr. Parkin, there is no salmon fishing industry on the Columbia at present in the upper reaches because of the dam structures. Twelve or thirteen dams have ruined salmon fishing in the upper reaches of the Columbia river. Is that a true statement?

Mr. PARKIN: That is definitely so, Mr. Chairman. We mention in our brief that in the one year of 1958 a greater number of salmon came back to the Fraser than the Columbia has had for 15 years. That statement is made by Dr. Peter Larkin who headed the fishery institute of British Columbia at that time and who is now director of the biological station at Nanaimo. He assured us that statistics prepared by the wildlife service and by our own federal department of fisheries show that this is the case. Despite the huge expenditure for fish ladders, they just could not save the salmon.

Mr. KINDT: No salmon at present, despite the ladders that have been established at these dams, reach the Columbia, the Arrow lakes and farther up for spawning; is that true?

Mr. PARKIN: That is absolutely true. Let me qualify it, however, to this extent. It has been reported that in some of the upper tributaries of the Columbia the odd hardy spring salmon has managed to tough it out. According to the biologists, time and the delay in reaching the spawning grounds are of major importance. The Pacific salmon spawns but once, and that at full maturity. Once it enters the fresh water of the river it ceases to feed and must live on energy built up during the years at sea. This excessive delay drains their energy and it is impossible for them to surmount high dams; and they have lost the major runs in the Columbia. There are a few small ones in the lower reaches of the Columbia, but they are relatively unimportant from a commercial viewpoint.

Mr. HERRIDGE: Mr. Chairman, I would like to ask the witness a question. On page 67 of the minutes of Tuesday, April 7, Mr. Kindt asked this question of Mr. Martin, the minister:

I have one question, Mr. Chairman. I wonder if the minister would once again state what the position of the government would be had it ratified this treaty and everything else, and if this committee should bring in additional recommendations for improvement? As I understand it our function here is to improve this treaty.

Then Mr. Martin answers by saying:

No, not at all.

This indicates we are not supposed to introduce any amendments. Then Mr. Kindt continues:

Well, to improve the situation with respect to Canada.

Mr. Martin replies:

No, your function is to indicate whether you approve of what the government has done, whether you approve of this treaty, and whether you approve of the protocol, whether you approve of the sales agreement and the conditions of sale. That is the function of the committee. Any variation of it would of course involve a repudiation of the position taken by this government or by its predecessors in regard to the treaty.

Then Mr. Kindt asks:

Does this not put the committee into the position of being pretty much a rubber stamp?

Mr. Parkin, that statement by the minister has shocked a good many people.

The CHAIRMAN: If you have a question that is germane to this witness, Mr. Herridge, I would be glad if you would put it.

Mr. HERRIDGE: I have a pertinent question which I am about to put to this witness because he is better able to answer it than possibly many others.

In view of the minister's statement in respect of the position of this committee not having power to recommend any amendments, but having to accept or reject, will you give us your experience with respect to the negotiations of treaties concerning the fishing industry? What has been the procedure? Do you know of any cases where amendments were recommended by organizations and accepted by the governments and so on?

Mr. PARKIN: Yes, Mr. Chairman and gentlemen. I think a classic example of that was the north Pacific fisheries treaty. This was a tripartite agreement at the time the Japanese peace treaty was signed. That agreement is between Canada, the United States and Japan. A draft treaty was drawn up by the late John Foster Dulles, a treaty which, to say the least, the Canadian industry felt was detrimental to our industry here in Canada; and we protested. The Canadian members of the negotiating team were headed in that year by the Hon. Mr. Mayhew who was then minister of fisheries. We met with them first in Vancouver. All sections of the industry were present. Mr. Mayhew agreed with the Canadian industry that certain amendments to that proposed document were essential and necessary. They went to Tokyo for the purpose of negotiating the treaty.

I might say that while the end result of the treaty was certainly not all of the things that the Canadian industry wanted, there were definite amendments and changes made in the treaty during those negotiations in Tokyo.

The same applied, I think, when we negotiated the change in the international Pacific salmon fisheries treaty to include the pink salmon in international waters and Juan de Fuca strait.

Mr. BYRNE: Had the treaty previously been signed by the government?

Mr. PARKIN: In the case of Norpac, no; but in the case of the international salmon commission, yes, there was a treaty.

Mr. BYRNE: Signed by the government of Canada?

Mr. PARKIN: This was an actual treaty in effect and it was amended and changed to include another fishery. But additional amendments were made to the original draft treaty.

Let me explain it in this way. I am perhaps confusing more than clarifying this. We had an international salmon treaty which included sockeye salmon which travel through the strait of Juan de Fuca. It was felt desirable to include the pink salmon because the United States fleet was able, because of the contour of the coast at that point, to get a major part of the pink salmon run even though they were spawned in Canadian waters in the Fraser. There was a draft of the new treaty which was known as the international salmon fisheries treaty because it included more than one species. I might say that at that time Mr. Sinclair, who was secretary, included our representatives in the negotiating team when the treaty was negotiated, and several amendments were put in the draft and have now become law.

Mr. MACDONALD: That was during negotiations?

Mr. PARKIN: Yes.

Mr. LEBOE: Was that treaty brought before the external affairs committee and ratified here in the external affairs committee?

Mr. PARKIN: I believe it was studied by the House of Commons standing committee on marine and fisheries. Whether it also came before the external affairs committee I cannot say because I have no information on that.

Mr. LEBOE: The recommendations for the changes came out of that committee?

Mr. PARKIN: That is right.

Mr. BYRNE: This was a treaty that had been in existence for some time and it was suggested that some amendments be made. It went into new negotiations. Negotiations were opened between the two contracting parties, and amendments were proposed. However, was the draft signed before the amendments were made? This is simply a question of whether the executive had performed an executive act and then were asked to change it by a parliamentary committee.

Mr. PARKIN: Again, I am sorry, Mr. Chairman, I cannot answer that with any degree of accuracy.

Mr. BYRNE: This is the important part of this question.

Mr. HERRIDGE: It is obvious from the witness' answer that prior to any final ratification of the treaty persons interested had an opportunity to make amendments to what was proposed.

Mr. Parkin, have you any knowledge of the treaty of 1846, article II, which gave to Canadian citizens and British subjects the right of free navigation on the Columbia in perpetuity in return for the surrender of certain land east of the Pacific ocean?

Mr. PARKIN: I could not quote that, Mr. Herridge, but I have heard of it. I am very proud of the fact that I am an original British Columbian. My great grandparents arrived on the old *Princess Royal* to found Nanaimo with the first settlers in British Columbia. My father was born in British Columbia and loves to speak of days gone by. He has been very alert to what has happened in the past historically between Canada and the United States. I have heard him

tell this tale when he was quite irate over some particular situation that developed between the two countries. He was very much a nationalist in his outlook as far as Canada was concerned.

Mr. HERRIDGE: It is known that the United States built the Grand Coulee and Bonneville on the Columbia river and completely ignored Canada. I asked Mr. Pearson to search the records but he was unable to find a single letter to Canada. They built dams which prevented navigation into the upper Columbia and also prevented the migration of the salmon which used to come into the upper reaches of the Columbia. Have you heard of that?

Mr. PARKIN: When this was discussed in the fisheries development council there were representatives at the discussions of the Department of Fisheries and the university, the co-operative movement and all sections of the industry. It was pointed out at that time, because of this danger threatening the Fraser river salmon, that precisely the same thing could happen as had happened on the Columbia river.

At that time the fish and wildlife service of the United States was considered a minor portfolio and was not given the same recognition that the fisheries resources people are given today. However, American experts at that time predicted what would happen, and they suggested that if a fight started on the Canadian side—and we also benefited from those American salmon just as the people of the United States benefited and exploited the Canadian salmon—they felt had we put up a fight at that time we might have been able to block the beginning of those dams on the Columbia river and save a huge natural resource. However, Canada did not act at that time, so we have lost the Columbia salmon runs.

Mr. KINDT: Mr. Parkin, I have one other question. You stated words to the effect that under this treaty Canada is losing its sovereign rights; that we are dominated by the United States and giving the United States a greater opportunity to dominate, and that what we are receiving in return is dollars. Those dollars are to be used for building a dam on the Peace, and for building Mica dam and other storage dams in the headwaters of the Columbia. In other words, we are getting dollars in return for selling sovereign rights and real estate. Is that your position?

Mr. PARKIN: Yes, definitely, Mr. Chairman. In reply to that I would say very quickly that we feel an exchange of "X" number of dollars will never compensate Canada for the loss of her sovereign rights over the river itself, for the loss of Canada's control of the river and the loss, possibly and very likely, of many thousands of jobs for Canadians that could flow from the availability of cheap power on the Columbia river basin on the Canadian side.

If we look at the experience of the Tennessee valley authority, where the availability of cheap power there brought a tremendous industrial development in that valley, we can foresee the same thing happening in Canada. What we are doing here by turning the Columbia into merely a storage basin for the United States is exporting those jobs to the United States, and we will be expected to buy back the manufactured goods from the United States—if we have enough employed people left in Canada to pay for them.

Mr. HERRIDGE: Mr. Parkin, in coming to your conclusions with respect to this Columbia river treaty, is it correct to say that you have given consideration to the constitution, to the human aspect, to the resource values, to the permanent employment situation, to the building up of Canadian industry, to the recreational values and to what Mr. Kindt is pleased to term the intangible values? Have you considered all these factors in coming to your conclusion?

Mr. PARKIN: Absolutely, Mr. Chairman. In answer to Mr. Herridge, I would say that we consider health and recreation as one of the most important

factors. I have pointed out, and we have mentioned in our brief, that there are over 150,000 anglers who take to the tidal waters for salmon. It is equally true that thousands of Canadian citizens are looking for recreational outlets throughout British Columbia. We have a very limited amount of land resource there. I think it has been stated that only some three per cent of British Columbia is land that can be used for recreational purposes unless one is a mountain climber, an alpinist or a skier. Anyone who looks at the raised map of British Columbia in the British Columbia building—and it is very worth while looking at—will see that we have narrow valleys and a limited amount of space for British Columbia people to use for recreation. That is a very important fact indeed and was taken into account when we discussed the whole question.

I recall attending the British Columbia natural resources conference at Harrison Hot Springs about three years ago. We have been a member organization of the resource conference for several years and I have attended about six or seven of them. Papers are given at these conferences, prepared by professional people, scientists, men of industry and so on, dealing with the use of British Columbia's natural resources and management of them.

I was very impressed one time when I heard Dr. Keenleyside in an address say that he was very distressed to find that one of the most important resources of our province was not even mentioned during the entire conference, and he said "I refer to people."

I am rather distressed today to find that Dr. Keenleyside who is now an employee of the British Columbia Hydro and Power Authority is ignoring these same rights of the people.

Mr. BYRNE: That is nonsense.

Mr. PARKIN: No. Dr. Keenleyside is at present covering a part of British Columbia trying to convince people that this is really in the interest of Canada.

Mr. BYRNE: Well, that is exactly what he happens to believe, just the same as you are stating the things that you believe.

Mr. PARKIN: That may be, but Dr. Keenleyside did express very keen interest in people, and I suggest that to take these people and to move some 2,000 of them out of the Arrow valley is another matter.

Mr. BYRNE: But you would have to move a lot of people out of the east Kootenay district to do the other things.

Mr. PARKIN: That is right, and there are times when people must give way to progress. But in the case of the High Arrow there is no engineering evidence that has been submitted to our committee up to now to show that it is essential.

Mr. KINDT: I have one more question. Would you say, Mr. Parkin, that the sale of these rights, the sovereign rights and so on, was undertaken in order to gain control of capital for the development of resources? The province of British Columbia is responsible for the development of its resources, and they have to have capital to do it, so they have used this method of the sale of real estate and sovereign rights in order to gain control of the capital for the development of their resources.

Mr. PARKIN: I cannot see, Mr. Chairman, how that reasoning would apply in this case, because with the total amount of money that has been promised by the United States under the treaty and protocol, it is questionable whether it would pay for the total cost of the storage dams alone, let alone leave anything over for the development of industry in this province or for any kind of development; and, at the same time, as we point out again and again, it gives away control of the river and it loses a large block of potential power which would be possible under the McNaughton plan, if we should divert the Kootenay

into the Columbia. They estimate up to one third increase for power potential at Mica. Those are very real and tangible things out of which we could have the development of industry in Canada through cheap power which would then be possible. The cash amount received from the United States to build dams is certainly not enough to develop industry in the southern part of British Columbia.

The CHAIRMAN: Thank you, gentlemen. I appreciate the co-operation of everybody in bringing this hearing to an early conclusion. Tomorrow our witness will be John Hayward of the Columbia river for Canada committee, from Vancouver.

I ask the steering committee—and Mr. Kindt is invited to sit in—to meet in my office, room 454D at two o'clock, when we have one or two matters to discuss.

Mr. RYAN: May I have permission to make a couple of slight changes in the record?

The CHAIRMAN: Very well.

Mr. RYAN: In Minutes of Proceedings and Evidence No. 14, at page 782, in the seventh line from the bottom, the word "when" should read "if" and on page 783 in the first line the letter "c" in brackets should be taken out and the words "and clause V" should be inserted; and on the same page, page 783, in my second question from the bottom in the second line the word "for" should read "after". Those are the changes which I request the committee to make.

The CHAIRMAN: Is it agreed?

Agreed.

Mr. HERRIDGE: I am sure that the members of the committee have enjoyed hearing a representative from thousands of workers in British Columbia.

Mr. LEOE: What time shall we meet tomorrow?

The CHAIRMAN: The meeting tomorrow is at 9.00 a.m.

HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 20

WEDNESDAY, MAY 6, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

Mr. John Hayward, Vancouver, representing the Columbia River
for Canada Committee

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt
and Messrs.

Brewin,	Fleming (<i>Okanagan-</i>	Macdonald,
Byrne,	<i>Revolstoke</i>),	MacEwan,
Cadieux (<i>Terrebonne</i>),	Forest,	Martineau,
Cameron (<i>Nanaimo-</i>	Gelber,	Nielsen,
<i>Cowichan-The Islands</i>),	Groos,	Patterson,
Cashin,	Haidasz,	Pennell,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

WEDNESDAY, May 6, 1964

(35)

The Standing Committee on External Affairs met at 9.00 a.m. this date, the Chairman, Mr. Matheson, presiding.

Members present: Mrs. Casselman and Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Gelber, Haidasz, Herridge, Leboe, Macdonald, Matheson, Patterson, Ryan, Turner, Willoughby (16).

In attendance: Mr. John Hayward, Vancouver, representing the Columbia River for Canada Committee.

The Chairman announced that correspondence has been received from Mr. C. H. B. Frere, Legal Division, Consolidated Mining and Smelting Company of Canada Limited, Trail, British Columbia; and from Mrs. Heather Gates, Nakusp, British Columbia.

The Chairman stated that the subcommittee on agenda and procedure met on May 5, 1964, and agreed to report as follows:

1. Your subcommittee discussed a letter from Premier Lloyd of Saskatchewan, dated April 29th, requesting a postponement of two weeks for the appearance of Government of Saskatchewan representatives.

Your subcommittee also discussed a subsequent telegram from Mr. Lloyd, dated May 4th, suggesting that David Cass-Beggs, General Manager, Saskatchewan Power Corporation, J. W. MacNeill, Executive Director, South Saskatchewan River Development Commission and Professor Barry Strayer, College of Law, University of Saskatchewan, appear on May 14th or 15th.

Your subcommittee recommends that Mr. Lloyd be advised that the committee will receive the aforesaid on the date originally set to receive the representations of the Government of Saskatchewan, i.e., Thursday, May 14, 1964.

2. Your subcommittee noted a request from Mr. Larratt Higgins, who was an invited witness on April 29th, that the committee pay the cost of preparation of his brief, as well as his travel expenses.

Your subcommittee recommends the payment of Mr. Higgins' travel expenses, but recommends that the cost of the preparation of his brief be at the witness's own expense.

3. Your subcommittee noted that Mr. R. Deane of Rossland, British Columbia, who requested permission to present a brief and will appear before the committee on May 7th, has now requested that the committee pay his travelling expenses.

Your subcommittee recommends that this committee do not accede to Mr. Deane's request for payment of his travel expenses, since he is appearing at his own request.

4. Your subcommittee recommends that the Communist Party of Canada, who have asked to present a brief, be notified that the committee will hear their representative on Friday, May 8, 1964.
5. Your subcommittee recommends that Mr. Cliff Parker of the International Union of Operating Engineers, Vancouver, who has asked to appear before the committee at his own expense, be notified that the committee will receive him on Monday, May 18th.
6. Your subcommittee recommends that the date for the reappearance of the Secretary of State for External Affairs be tentatively set for Wednesday, May 20th.

On motion of Mr. Turner, seconded by Mr. Cameron (*Nanaimo-Cowichan-The Islands*), the report of the subcommittee was approved.

The committee resumed consideration of the Columbia River Treaty and Protocol.

The Chairman introduced the witness, Mr. Hayward, and asked him to summarize his brief as copies had been distributed to members in order to allow them to study it in advance.

In summarizing his brief, the witness stated that he had been asked to read into the record the names of organizations supporting the Columbia River for Canada Committee. Mr. Leboe moved, seconded by Mr. Davis, that the names of the supporting organizations be not read into the record. The motion was carried on the following division: Yeas, 12; Nays, 1.

The witness concluded the summary of his brief in opposition to the Columbia River Treaty and Protocol, and was questioned.

At 11.00 a.m. the committee adjourned until Thursday, May 7, 1964, at 10.00 a.m.

Dorothy F. Ballantine,
Clerk of the Committee.

NOTE: The maps and charts referred to in the proceedings of April 10th (Issue No. 4) are attached hereto as Appendix N-1 to N-6.

EVIDENCE

WEDNESDAY, May 6, 1964.

The CHAIRMAN: Gentlemen, I see a quorum.

I beg to report to the committee that your subcommittee on agenda and procedure met on May 5, 1964, and agreed to report as follows: (See *Minutes* for complete report).

Your subcommittee recommends the payment of Mr. Higgins' travel expenses, but recommends that the cost of the preparation of his brief be at the witness' own expense.

I might indicate by way of a word of explanation that there was considerable cost in this case with regard to multiplication of this brief. In addition to this, Mr. Larratt Higgins asked for the repayment of his own stenographic costs in respect of the preparation of the copy he submitted to us. This is what the subcommittee felt should not be paid.

You have heard these recommendations. May I have a motion.

Mr. MACDONALD: Mr. Chairman, I would to say a few words with regard to the telegram received from W. S. Lloyd. I think patently the committee should be in some doubt about his authority to speak on behalf of the government of Saskatchewan, at least into the future. His mandate is very much in doubt. I wonder very much whether we should be hearing people on his say so. It could be that by the time they appear he will have no more authority than that of an individual member of the legislature. Personally, I would have some doubt whether this committee should essentially decide the result of the Saskatchewan election. I believe we should defer that particular item until Mr. Lloyd, or someone else, has a clear mandate.

Mr. HERRIDGE: With regard to the points raised by Mr. Macdonald, I do not think this committee is called upon to decide this issue. Until the decision is final, Mr. Lloyd, by law, is premier of Saskatchewan.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): If my memory serves me right, I think it was stated in the paper that the election issue will be settled on the 13th day of May, so presumably by the time they appear this issue will be cleared up. Also, I think we have to consider the possibility that Dr. Cass-Beggs and the other gentleman may come here armed with alternative credentials of some sort.

Mr. MACDONALD: This may be, but we are being asked to set aside some of the committee's time when perhaps more useful and valuable witnesses could appear. I believe, to put the case from the very best standpoint, so far as Premier Lloyd is concerned he does not have a mandate; he will not have one until some time in the middle of May, and we should wait to see whether or not he is entitled to speak for Saskatchewan.

The CHAIRMAN: At the moment, gentlemen, I have no motion. We actually have six recommendations which your subcommittee has brought forward. I would be happy to deal with these item by item if you wish.

Mr. TURNER: I would move that the recommendations of the steering committee be accepted.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I second the motion.

Mr. CHATTERTON: What is the recommendation with regard to Premier Lloyd?

The CHAIRMAN: Your subcommittee discussed a letter from Premier Lloyd of Saskatchewan dated April 29 requesting a postponement of two weeks for the appearance of government of Saskatchewan representatives.

I might intimate to the committee that prior to that it had been arranged that a member of the Saskatchewan cabinet would meet with this committee on May 14.

Your subcommittee also discussed a subsequent telegram from Mr. Lloyd, dated May 4, suggesting that David Cass-Beggs, general manager, Saskatchewan Power Corporation, J. W. MacNeill, executive director, South Saskatchewan River Development Commission and Professor Barry Strayer, College of Law, University of Saskatchewan, might appear on May 14 or 15.

Your subcommittee recommends that Mr. Lloyd be advised that the committee will receive the aforesaid persons on the date originally set to receive the representations of the government of Saskatchewan; that is, Thursday, May 14, 1964.

Now, gentlemen, one of the considerations which I think was in the mind of the steering committee was the problem that our hearings are continuing at some length, and we have the problem regarding the terminal date.

Mr. LEOE: Mr. Chairman, I think we can accept the proposal of the subcommittee, because these persons actually are not connected with what we refer to as the treasury benches; we are not meeting anybody from the cabinet. They are civil servants and a professor, I believe. I think we could accept that.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I think the very fact that Premier Lloyd has asked for postponement to this particular date is evidence that he is well aware of our difficulty and wishes to postpone this until after the decision is made.

Mr. TURNER: I have moved the acceptance of the report.

Mr. CHATTERTON: If there might be a change of government on the 13th day of May, these persons will be leaving, say, on the thirteenth and arriving on the fourteenth. If there is a change of government, will there be time to consider the credentials of these persons who have been delegated to come?

The CHAIRMAN: I feel sure this matter has been given consideration by Premier Lloyd.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): And probably by somebody else.

The CHAIRMAN: Yes. One of the directions to our witnesses has been to the effect that we be provided with material ahead of time. Perhaps in these delicate circumstances it might be well that members of the committee treat anything received from any of these three persons as entirely confidential until after their appearance before the committee in case their directions from Saskatchewan might appear to be different.

Mr. LEOE: I might mention that once the issue is settled, Premier Lloyd very well may carry on for a month before the actual change is made in the government of Saskatchewan, which has happened many times.

The CHAIRMAN: I know one of the feelings of the steering committee was that we were not trying to deprive anybody who had anything to say of the opportunity to say it. Of course, on the other hand, in dealing with the province we must be responsible and act with as much delicacy and protocol as circumstances demand.

Mr. HERRIDGE: Mr. Chairman, before you put the motion, I note you have Mr. Martin coming on May 20.

The CHAIRMAN: Yes.

Mr. HERRIDGE: I am just presuming that Mr. Martin would be closing the case for the government. Some of us wish to call further witnesses on fisheries and water resources, and there are some other possible representations to be made. The fact that Mr. Martin's appearance is set for May 20, I presume, would not prevent other witnesses from attending.

Mr. TURNER: Mr. Chairman, I think the word used was "tentatively".

Mr. HERRIDGE: Well, that is all right.

The CHAIRMAN: Mr. Herridge was unable to attend the steering committee meeting yesterday. I just discovered that this morning. Mr. Herridge, the word was "tentatively".

Mr. HERRIDGE: Then, that is satisfactory.

The CHAIRMAN: I think it is only reasonable we should expect that the hearing involving Mr. Martin and his advisers would close the case.

Mr. HERRIDGE: I would assume that. We are satisfied with the word "tentatively".

The CHAIRMAN: Is that satisfactory to the members of the committee?

Some hon. MEMBERS: Agreed.

Mr. LEBOE: Mr. Chairman, in respect of the matter just raised, I think we must give everyone a chance to appear at these hearings but, at the same time, I think consideration should be given to the multiplicity of repetition that we are getting. As you know, we are not receiving any new material or new arguments. I think these things should be borne in mind by the steering committee when they are making a decision. I think this matter should be worked out to everyone's satisfaction.

The CHAIRMAN: On that point, you will recall some time ago it was hoped there might be two or three representations brought in on the one day. However, Mr. Herridge took exception to that. He felt each of these submissions was very important and would take a long time. In my opinion, we could double up to some extent.

Mr. LEBOE: Amen!

The CHAIRMAN: As I say, I think we should do that, if it could be done. Perhaps that would provide the solution and we then could still leave this tentative date of May 20 as our objective.

Mr. PATTERSON: Mr. Herridge stated it was possible we would be having other representations. I submit to this committee we ought to have some cut-off date in order to get away from the situation of arriving at May 15 or 20 and then having the situation where others want to appear. As I say, I think there should be a cut-off date.

Mr. HERRIDGE: The steering committee can consider that point.

The CHAIRMAN: Everyone who has written to the committee has been furnished with our material and the procedures to be followed.

Mr. PATTERSON: But the suggestion has been made that there will be more representations coming.

Mr. CHATTERTON: I suggest to the steering committee that if any further inquiries come in, in respect of appearing, they be advised that the suggested cut-off date is May 20.

Mr. HERRIDGE: The cut-off date for what?

Mr. CHATTERTON: The tentative suggested cut-off date.

The CHAIRMAN: For hearings.

Mr. HERRIDGE: You mean for notification to the secretary?

Mr. MACDONALD: For appearing.

Mr. HERRIDGE: Then I strongly object to that.

Mr. MACDONALD: Surely, if they have a serious interest in these proceedings they would have had themselves mobilized by this time, and if that is not the case then it looks to me they are engaging in delaying tactics.

Mr. TURNER: In respect of the date of May 20, surely the word "tentatively" speaks for itself, and perhaps the committee as a whole could deal with future matters when they arise.

The CHAIRMAN: We have taken every precaution to acquaint everyone who is interested in this matter of the procedures and have advised them to get their submissions in, in advance. I do not think we have neglected to do that in any correspondence or telegrams which have gone out. So, there is nothing further I or the steering committee can do to expedite any of these hearings if representatives still are expecting to be able to produce briefs sometime in the latter part of May.

Mr. HERRIDGE: But as a result of the evidence that people are giving no doubt this is being studied by engineers and others. I do not think we should be too arbitrary in this respect. If you leave it tentatively in respect of Mr. Martin that is flexible enough. This is a word we use under the circumstances.

The CHAIRMAN: I hope anyone else who is interested in appearing will make contact with us at once. As you know, this is May 6 and we have not too much time left.

Are you ready for the question?

Some hon. MEMBERS: Question.

The CHAIRMAN: All those in favour?

Motion agreed to.

The CHAIRMAN: Today we have a representative from a group called Columbia River for Canada Committee. Appearing on behalf of this committee is the president of division 101 of the Amalgamated Transit Union, Mr. John Lewis Hayward of Vancouver.

Mr. GELBER: Mr. Chairman, before the witness commences, I presume he is going to give a summary of his brief.

The CHAIRMAN: Well, that has been our practice.

Mr. GELBER: How much time is going to be allowed for the summary?

Mr. JOHN LEWIS HAYWARD (*President of Division 101, Amalgamated Transit Union, Vancouver, British Columbia*): If I could say a word.

Mr. GELBER: Just a moment, Mr. Hayward; I would like this settled before we start.

The CHAIRMAN: The brief has been in the hands of the committee members and they have had an opportunity to study this. I would hope a summary might be concluded in a period of 30 minutes. If that is an unfair request I wish the members would so indicate.

Mr. HERRIDGE: Mr. Chairman, do you think a summary of a brief presented on behalf of many thousands of workers in British Columbia should be concluded in a period of 30 minutes?

Mr. MACDONALD: It is really a question of the content and what the witness has to say to us. It does not make any difference how many people he is speaking for; it is the importance and relevance of what he has to say. If he has things to say which are relevant and important I agree that there should be no limit on the time but if he is repeating what we have heard time and time again I think he should summarize it briefly and then offer himself for questioning.

The CHAIRMAN: Mr. Hayward, by way of summary and including any new information, do you think you could cover this in a period of 30 minutes prior to questioning?

Mr. HAYWARD: I would find it very difficult to do it in 30 minutes. Quite frankly, I think most of the information is not technical. It is the way people feel. I do not know how I am going to be able to appear before this committee and project the feelings of people whom I represent in 30 minutes. I just do not know how I can do it.

Mr. GELBER: Mr. Chairman, I would like a time limit set. This brief consists of only 33 pages and it could be read in that time. To start with, there is a lot of drama. I have read part of it. It does not consist of real evidence for this committee, and I think a period of 30 minutes should be firmly held.

Mr. HERRIDGE: Invitations have been sent out to people in order to give them an opportunity to express their views, which means their opinions and judgments. I think the suggestion made by the hon. member of the committee is a good one, that we should have the brief read.

Mr. MACDONALD: That is not the suggestion at all. I suggested the procedure to be adopted by this committee is that if the witness has the nub of his thoughts he can state it, but he should not take up the committee's time in reading something we have had 10 days already. Surely if he has something significant to say he can do it in 30 minutes.

Mr. BYRNE: So far as I am concerned, the entire page 8 of the brief can be summed up in two words, "unadulterated nonsense", and that would simplify that. If you would like to go to the next one I can summarize that as well.

Mr. HERRIDGE: That is your opinion; Mr. Hayward is expressing the opinion of several thousand workers.

Mr. BYRNE: I have read the opinions of the witness and I do not want to have it repeated to me in full. I say it is unadulterated nonsense.

The CHAIRMAN: Surely the whole purpose of our receiving material is to get a picture of the whole case presented by the Columbia river for Canada committee. I think it is only fair that we recognize that this is not going to be new material but a summary of what is contained here in the brief. Perhaps I could ask Mr. Hayward, having heard the comments by the members of this committee, to be as kind and co-operative as he can in presenting his brief in a succinct way.

Mr. HAYWARD: I will do my very best.

Mr. BYRNE: Mr. Chairman, when are we going to hear from the Communist party?

Mr. MACDONALD: We have been hearing from them for the last three days.

The CHAIRMAN: We have invited a representative of the Communist party to appear on Friday, May 8.

Mr. BYRNE: Their representation will probably be representative of what we are reading in this brief.

Mr. HAYWARD: Mr. Chairman, if Mr. Byrne is making allegations I wish he would make them in public and in a way that something can be done about them. I object to that statement. I resent that kind of remark and will not accept that type of treatment from any member who is elected by the people of Canada.

Mr. BYRNE: I asked the Chairman when we were going to hear from the Communist party of Canada.

Mr. HAYWARD: I heard what you said.

Mr. BYRNE: I have heard many of their representations before and they certainly resemble what I read in this brief.

The CHAIRMAN: Gentlemen, I would ask members of this committee to remember that we are hon. members of the House of Commons and that every individual who comes here should be accorded the courtesy being allowed to honestly put forward the views they truly feel are representative of the feelings of those groups which they represent.

Mr. BYRNE: Mr. Chairman, I believe that as a member of the government party I deserve some consideration, and certainly when I read statements such as "Damn this government—Damn their vacillating gutless attitude to the United States of America—Damn their fawning, boot-licking attitude"—, I am incensed. If this is the type of thing we are going to have to sit here and listen to, then I am sure the witness is going to have to listen to some pretty severe criticism.

The CHAIRMAN: Mr. Byrne, I think you could very easily raise questions in respect of that type of comment so that they will be brought to the attention of the committee as a whole.

Mr. GELBER: Mr. Chairman, I do not think you have understood the point. I must object to this type of evidence. This is not the type of thing this committee has been set up to hear. This committee is set up to hear evidence in respect of the pros and cons of the treaty and protocol, and make some kind of a decision. I do not think we have been set up to hear this type of dramatized brief. I think you as the Chairman should ensure that this type of thing does not take place.

Mr. LEBOE: Mr. Chairman, I agree with that statement. I think Mr. Gelber's point is very well taken. We are here to decide whether we should accept or reject the treaty on the basis of facts, and not on the basis of hearsay and irrelevant material which may be placed on the record as representing the feelings of some individuals toward others. We are dealing with something that is far bigger than that. We are dealing with a treaty between two nations. I feel we must not listen to a lot of irrelevant material supposedly representing the feelings of some individuals. We are interested here in facts and their relationship to other facts.

The CHAIRMAN: I do not think we should prejudice what Mr. Hayward is about to say.

Mr. BYRNE: We do not have to prejudice what he is going to say because it is here in this brief.

Mr. LEBOE: The brief has been given to us to read and that is why I made my statement. The submission has been in our possession and we know what is contained in it. If the witness intends to summarize this submission, which we agreed is the procedure to follow, we are going to hear the same type of language used in the brief. I do not think we should listen to a lot of representations, based on something other than fact, which are actually irrelevant to the subject that we are here to consider.

Mr. BYRNE: Mr. Chairman, I represent 22,000 voters in the east Kootenays and I have not received one damn letter condemning this treaty since I came down to Ottawa at the beginning of this session. If someone comes here from the west coast and calls me a vacillating, bootlicking rubber stamp it is just more than I am going to listen to. I have read his opinions once but I will be damned if I am going to sit here and listen to him read them to me again.

The CHAIRMAN: Perhaps I have by my statements already indicated that I have not read this brief. I am sure Mr. Hayward will be guided by the comments which have been made, and if there are any objections as we proceed perhaps the members will be good enough to indicate them to Mr. Hayward.

Mr. LEBOE: Mr. Chairman, just before we proceed with the summary I should like to read a portion of this brief which will perhaps give some understanding to future readers of our evidence of the reason for our objections this morning. The part I wish to read is as follows:

This dam is such a dastardly denial of the inheritance of future British Columbians that no form of compensation can hide from them the capricious, political stupidity, the awful professional ego, the sly avaricious greed of those who may gain financially.

Mr. BYRNE: That refers to every voter in my constituency and they are affected more by this dam than anyone else in the valley. What kind of nonsense are we going to have to listen to?

The CHAIRMAN: I am sure we are not going to have to listen to that kind of thing.

Mr. BYRNE: Those statements are made in this brief.

Mr. MACDONALD: Mr. Chairman, may I suggest that if the witness is going to make statements and remarks of that kind, and others contained in this brief, which I consider contempt of parliament, I should indicate my intention to move if necessary that we take steps to have this witness cited for contempt of parliament. With that understanding let us hear what the witness has to say.

The CHAIRMAN: Yes.

Mr. HAYWARD: Thank you, Mr. Chairman. I should like to make one remark, Mr. Chairman, if you will allow me to do so. I am sorry that some of the wording in this brief seems to have raised the ire of the respected gentlemen here.

Mr. BYRNE: I used the phrase "running off at the mouth" here the other day and one of my constituents took great exception to it. I apologized for making that statement. I am certain that after giving some consideration and thought I would not have written it down and had it reprinted and duplicated as the witness has done.

Mr. PATTERSON: Mr. Chairman, may I state that I feel the wording of this brief defeats the very purpose for which the gentleman is appearing before us this morning.

The CHAIRMAN: Perhaps without further interruption we should allow Mr. Hayward to succinctly present his submission.

Mr. WILLOUGHBY: Mr. Chairman, it seems to me that if the first part of this brief was eliminated we would avoid a lot of this controversy.

Mr. BYRNE: I agree with that suggestion. If there are any statistics left we may then consider them.

Mr. HAYWARD: Mr. Chairman, this committee is the court of last resort for those people it represents.

This committee has asked me to read into the record the names of those groups who have seen fit to subscribe to this brief inasmuch as they felt they wanted to be acknowledged as represented. There are some 76 names, which is perhaps unfortunate, because it will take time to read them.

Mr. CHATTERTON: If the witness intends to read pages 4 and 5 I should like to move that they be taken as read and put into the record.

Mr. LEBOE: Mr. Chairman, many other people have appeared representing many individuals and organizations but we have not allowed them to list those individuals or organizations in the record. Are we now commencing to depart from our practices?

Mr. HERRIDGE: I think the list of organizations should be taken as read and placed on record. That would be a satisfactory way of saving time.

Mr. LEBOE: As I understand the situation, there was a petition including 4,000 names which could be submitted here, supporting a particular viewpoint. Are we then to place those names on the record at some later date? It does not make sense to me to take all the names supporting a point of view presented to this committee and place them in the record.

Mr. BYRNE: I believe there are 4,500 individuals in the east and west Kootenays supporting one point of view.

Mr. HERRIDGE: That is 4,500 out of a population of 57,000.

Mr. BYRNE: I do not think that comparison is of importance.

The CHAIRMAN: I do not think this committee has time to allow a witness to read all the names of individuals supporting his point of view into the record. Perhaps Mr. Hayward could succinctly indicate the general character of those people he represents.

Mr. LEBOE: I move that we not list these names in support of this submission in the record.

The CHAIRMAN: Does someone wish to second that motion?

Mr. DAVIS: I second the motion.

The CHAIRMAN: All those in favour?

Motion agreed to.

Mr. HERRIDGE: Mr. Chairman, you did not call for the nays.

The CHAIRMAN: All those against the motion please indicate in the usual way?

There is one against the motion.

I declare the motion carried.

I am sorry, Mr. Herridge, but I got the impression that we were unanimous and I presumed the motion was carried.

Mr. HAYWARD: May I proceed?

The CHAIRMAN: Yes.

Mr. HAYWARD: Thank you.

Mr. HERRIDGE: Before you proceed, would you indicate to the committee the total number of workers represented by the 76 organizations of labour which support this submission?

The CHAIRMAN: Perhaps we could wait for that information until we reach our period of questioning, and allow Mr. Hayward to summarize his submission.

Mr. BYRNE: At the same time we receive that information could the witness also indicate how many members attended each meeting of those organizations at which support for this submission was discussed?

The CHAIRMAN: Perhaps we could leave that information in abeyance for the moment as well.

Mr. BYRNE: We might as well go all the way.

Mr. LEBOE: We have not heard the credentials of the witness as yet.

The CHAIRMAN: I have indicated that the witness today was president of division 101, Amalgamated Transit Union. He resides in Vancouver, British Columbia.

Mr. LEBOE: Is that all?

The CHAIRMAN: Yes.

Mr. HAYWARD: In the matter of this brief, Mr. Chairman, I will try to summarize it for the committee to the best of my ability.

We set up booths at the exhibition—the map that was here was part of it.

Mr. BYRNE: Was that the map which was draped here a couple of days before this submission? I wonder why it left off the entire Pend d'Oreille system which provides 5½ million feet of storage for Canadian use as well as United States use. It was not there.

Mr. HAYWARD: It was not.

The CHAIRMAN: Do I understand that was the map used by previous witnesses?

Mr. HAYWARD: This was a map of the Columbia river for Canada committee.

The CHAIRMAN: Would you be kind enough to indicate to whom you lent it? Who were the other people who had it?

Mr. HAYWARD: I believe they were the fishermen's union and the mine, mill and smelter workers.

The CHAIRMAN: Both of those witnesses?

Mr. HAYWARD: Yes. We had this booth at the exhibition. It was rather an expensive affair because exhibitions are expensive, as you know. We sent out some 40,000 copies of the protest cards which you see here as protest card No. 1. We felt it was:

An act of reckless and improvident philanthropy that would make this country the laughing stock of the world. The Americans haven't been offered such a windfall since the purchase of Manhattan island. The Bennett-U.S. squeeze play won't work. The power sell-out has to be resisted.

The CHAIRMAN: Surely this does not need to be read.

Mr. HAYWARD: No, Mr. Chairman, but we sent out some 40,000 copies of that, as well as the card which appears below which requested:

1. Elimination of the main anti-Canadian provisions, particularly the High Arrow and Libby dams.
2. Full parliamentary hearings before re-negotiation with the United States.
3. Appointment of General McNaughton as Canadian negotiator.
4. No weakening of Canadian Columbia river control now guaranteed under the International Boundary Waters Act.

Mr. HERRIDGE: Would you mention the page as you go along?

Mr. HAYWARD: This is on page 3 of the brief. These were sent out and they were printed for us by the British Columbia federation of labour.

We have two sheets listing people who have contributed to this committee. We also established a committee in Victoria, and there is one in Trail.

I will summarize the following. It may amaze the members here but the opposition to the present draft treaty emanates from and is supported by the building trades union of British Columbia as you will see if you read the accounts of those who subscribe to it. Now, it is not easy to be in opposition to something which means work for you and a livelihood for your family; in fact it is very difficult.

Regardless of what anyone here may think, the prime purpose of this committee has been to assure for future Canadians the rights which they are entitled to under their present government and under the present legislation prior to this treaty—both international and national legislation.

We appreciated the work of the building trades because we knew what they were sacrificing. I do not think anyone will argue with that statement. The more work there is, the better a man lives and the easier it is for him to get by. It is the contention of our committee that there is power all right, but not in kilowatts. From the technical point of view I imagine, Mr. Chairman, that you have received reams of material both for and against the treaty. You had ministers of the government of Canada and ministers of the government of British Columbia, as well as very capable people in the service of the government standing before you and saying, "Yes, this treaty should be signed."

Last but not least we feel that there is some international pressure. I will not read from the brief because I think you would take exception to it. Frankly, labour's position on this is a little different and the people whom I represent feel differently from the people who are here, and I do not wish to hurt your feelings if that is what will happen.

Mr. PATTERSON: I do not think it is a question of hurting the feelings of this committee. The witness should be acting in a responsible way in presenting facts which he wants to present without casting any innuendoes.

Mr. MACDONALD: And with respect for parliament.

Mr. HERRIDGE: Let the witness go ahead and give the opinions of the working people he represents, Mr. Chairman.

Mr. PATTERSON: That is open to question.

Mr. HAYWARD: We feel, Mr. Chairman, that the power of one billion dollars of new United States money is invested in Canada each year and it has its effect. On the other hand, there is the opposition of patriotic Canadians—and we are such—headed by General McNaughton and including prominent engineers such as James Ripley. I would withdraw Larratt Higgins, if you do not mind, because Larratt Higgins is an economist. However, this brief, as I should have told you initially, was done on a voluntary basis, both the typing and the drafting. This involves a lot of work by a lot of people, and quite frequently mistakes are made. If there are any such typographical errors, I will point them out to you and I trust you will correct them.

The opposition is not an organized entity; it lacks funds and research people. We found ourselves writing this brief to you and the hon. members on Good Friday, hoping against hope that the day may portend a resurrection of Canada as a nation.

Mr. BYRNE: Rather dramatic, is it not?

Mr. HAYWARD: We feel it is the truth.

Canada, nation or satellite? We come before you, humble in the knowledge of our limitations—and I am humble in this too because I think it is that important. I do not mind what you say to me but we find this a very important thing. I am no poet laureate and neither are the people whom I represent. I am afraid I cannot do an adequate job for them as a man of that type could. However, do you realize the degree of anguish that is felt by the average Canadian when he sees another one of his companies of resources sold to the United States?

We watch this piecemeal purchase of Canada and we feel frankly that it is not a good procedure. We are making our feelings known, but I will not use the language which appears here because it might be a little strong. However, I would like to put before you, Mr. Chairman, this fact: How can people such as us be left without means of articulating and voicing our case before you? How do you think a person feels inside when he sees this happening and he knows he has no means by which to stop it? He can write to his member of

parliament, but frankly it is not a well adjusted or well conceived thing in Canada at the present time.

Mr. LEBOE: Since you have asked the question, I have yet to receive one letter condemning the treaty.

Mr. BYRNE: I have visited my riding once a month and there have never been such representations.

Mr. HAYWARD: Yes, I agree.

Mr. LEBOE: You asked the question and I answered it.

Mr. HAYWARD: It is still a fact.

We feel that this government was elected to repatriate our industry and our nation. This was one of the planks. As people, we expect that to be carried out. Yet we find in this what we consider to be a give-away on the Columbia.

The matter is and can be well supported technically by people far more capable than I or the organization I represent.

We feel possibly what is creating one of the great schisms in our nation and the attitude of French Quebec to separatism is an attempt to achieve a national unity within themselves because they cannot achieve it within Canada. This is a heart breaking thing as far as British Columbia is concerned—two ends of a country appearing to want to split. This is not good, Mr. Chairman, and this is one of the reasons we are here.

Mr. BYRNE: Would the witness not admit that the plan of Quebec at present to ship its iron ore and power from Labrador to New York would indicate that they want truck and trade with the United States? How do you arrive at that?

Mr. HAYWARD: Mr. Chairman, "truck and trade" is an old fashioned slogan. We have a very excellent trade in British Columbia with the United States and a favourable balance.

Mr. BYRNE: Why bring Quebec into this?

The CHAIRMAN: Perhaps we should let Mr. Hayward conclude his summary.

Mr. HAYWARD: I did incorporate a little poem—or I should say that we incorporated it; we all learned it at school:

Breathes there a man with soul so dead

Who never to himself hath said

This is my own, my native land...

I do not think I need go further than that, Mr. Chairman; you all know it.

I might ask you—and I might ask you candidly, Mr. Chairman—just where will be the home of the Canadian if we follow this route as a nation? This Columbia treaty is not going to aid it. I say it literally and intentionally and on behalf of the people I represent. This will be without a doubt one of the things which will raise the greatest degree of dislike in the future generations against the United States, which is something we do not want. The last thing in the world that I want to see, or that any sensible Canadian wants to see, is a sore, a running sore, something that continually irritates or creates division between the United States and Canada. I might say that is a classic example. After all, we all fought together to maintain this nation and, as you know, Mr. Chairman, French, Indian and British fought to prevent the Americans from doing what they are doing so ably industrially today. We fought to prevent that in a physical way and now we do not seem to have any means of doing that. As a committee we say no, a thousand times no; this is not where we wish to go as a nation. This is not why this nation sacrificed, frankly, to bring its vast continental railways across the country, all three of them—Canadian Pacific Railway, Canadian National Railways and the Grand Trunk Pacific railway—three railways to tie a nation together with a purpose.

We have subsidized grain; we have subsidized the export of practically everything in order to maintain ourselves as a nation, and a nation we shall remain some way or other.

I would like to quote—and I trust you will allow me to read this because I do not want to abridge something Mr. Kennedy said; I had a great admiration for the gentleman—what was said by Mr. J. F. Kennedy to the university of New Brunswick in October, 1957, when he was a United States Senator:

Canada can neither be an extension of the Cornish coastline nor is she a mere northern vestibule to the United States. Canada has achieved a national strength and prestige which simply does not allow any portrayal of the country as an appendage of either Great Britain or of the United States.

We have a responsibility to demonstrate to all peoples everywhere that peaceful and stable existence by powerful countries side by side can remain a permanent reality in today's troubled world.

This is one of the reasons for which your committee is here; this is what we wish.

Mr. BYRNE: This is what the treaty seeks to do.

Mr. HAYWARD: That is not what the treaty seeks to do. That is a personal opinion of the member, not of our committee.

Canadians thanked Senator Kennedy when he first made the above statement. The Columbia for Canada committee wishes to express its thanks in memoriam. A more basic and statesman-like statement could not serve as a guide line to our nations.

The committee's attitude is pro-Canadian not anti-American, Mr. Chairman. This is not a paid submission, Mr. Chairman. We are not representing a government, a controlled industry or the intelligentsia or anyone else; we are just a cross-section of west coast, "Mr. Average" Canadians—just the average. Our feelings are mixed. Most of us have friends and relatives in the United States. In the main, we feel a greater affinity for the western states than we do for any other area. If we want to make a wage comparison, we certainly do not go east to Alberta, not from Vancouver; we go to Ontario, Wasington, Oregon or California. If it is for general or hospital insurance, we hit Saskatchewan. That is just the way the thing bounces. If it is for welfare, it is Canada; if it is radio or television, the average citizen in British Columbia picks his program as he wishes, American or Canadian. Of course, there is also the consideration of geographic location because in a mountainous country this is a problem, as Mr. Leboe will know.

Mr. DAVIS: What has this to do with the treaty?

Mr. HAYWARD: We respect the Americans for their business acumen but, frankly, we do not trust them.

The CHAIRMAN: I wonder, sir, if it would be possible for you to address your conclusions specifically to this treaty. This, after all, is what the committee is charged to consider.

Mr. HAYWARD: We had a letter from Mr. Pearson, Mr. Chairman.

The CHAIRMAN: I doubt that has much to do with our present deliberations.

Mr. HERRIDGE: Would you mind reading the letter.

The CHAIRMAN: No, I would ask Mr. Hayward to bring his remarks succinctly to their conclusion so that he will be doing justice to his brief with respect to the treaty.

Mr. HADASZ: You know what is in it, anyway.

The CHAIRMAN: You gave it to them, Mr. Herridge.

Mr. HERRIDGE: I certainly did not.

The CHAIRMAN: Will you defer any questions until the conclusion of the summary?

Mr. HAYWARD: We will not deal with the financial control of Canada by the United States entity. However, I think we should make a statement, Mr. Chairman, with regard to Canada under Canadian control. In British Columbia we do have an important segment of the population which is dedicated to the optimum use of our natural resources for the welfare of the people, their children and their children's children. I think that is a statement of fact. The rest can be read by the members. I am sure they will agree.

In my own union we have had a natural resources committee for some 15 years. It was the first union in North America to have a natural resources committee. We instituted them in the federation of labour.

This is pertinent to the treaty, Mr. Chairman: It is our conception of the duty of the government of Canada that in no circumstances, either present or in the foreseeable future, should the federal government allow a province to permit resources which come under their joint control to be alienated by treaty or otherwise in a manner which would be detrimental to the welfare, present or future, of another province. Anything less than this can only promote balkanization of our nation.

In British Columbia we had an example of the proper use of power in the national government when the Kaiser low Arrow dam was disallowed.

What we expect of national government is calm, unbiased appraisal of provincial policies which may conflict with the national weal.

If this is not to be the policy of the government of Canada, then surely we are lost. Certainly, under no circumstances, should the government trade away to another nation the sovereign rights of our people to control the resources of our land.

With respect to water, and the long-term view of the Columbia, to achieve some perspective, Mr. Chairman, I shall try to summarize this to the very best of my ability.

It is the contention of our committee that the treaty was negotiated from a completely wrong premise of flood control and power. We feel that water is the essential product that is necessary to the United States, and the treaty does not take into consideration water as a product itself, only power, which is a minimal by-product of the said water. Fresh clean water is what the United States was negotiating for.

I shall not bore you with statistics which I received concerning fresh water, because you can write to Washington, D.C., and receive them for yourselves. You will then find the position that the president of the United States was in. This is pertinent to the treaty, this is why the treaty is being written and planned for by the United States, and this is why we are here.

The United States has an average precipitation of some 30 inches per annum over the total, and by 1970 the United States will be short some 50 billion gallons of water per day, on the basis of, and according to this clean water report, and using every available amount once for some purpose—50 billion gallons of water are not just manufactured like that—over 50 billion gallons can be achieved from the Columbia with ease. It is a minimal amount.

The United States has suffered a great depletion of its underground supplies. I shall not read this. It is quoted from the *American Science Magazine*, and it is pertinent. They do tell us quite frankly that they will have to acquire water from some source, and that there is an underground intrusion of salt water on their coastal plain as far as up to 200 miles in Texas.

The CHAIRMAN: It is now five minutes past ten and rather than turning from page to page of your submission which has been in the hands of the

committee for some days for study, is it not possible, in your own language, succinctly to bring to the attention of the committee those points which you think are of great significance?

Mr. HAYWARD: I though I was doing so, Mr. Chairman. I apologize if I am not doing as well as I should. It may be I have limited ability in this matter. I have always read briefs in toto in the past, and I did not anticipate having to summarize this one. However, I shall try to do my best.

Mr. CHATTERTON: Did you not receive notice of our ground rules here that briefs should be summarized.

Mr. HAYWARD: I have had no letter to that effect. The only letter I have is from Mr. Pearson who says that briefs will be accepted.

Mr. HERRIDGE: You were not advised to that effect, in your committee?

Mr. HAYWARD: Not to my knowledge, no.

Mr. MACDONALD: Then how do you happen to appear this day?

Mr. HAYWARD: We were advised of the day, but I do not remember any notice with respect to summarizing the brief; otherwise I would have prepared a summary.

Mr. MACDONALD: May I ask the Chairman if the witness was sent a notice of the rules? Let me put it this way: have you been following the proceedings of this committee up to this point?

Mr. HAYWARD: Only in the press, and it has not been good.

Mr. MACDONALD: Surely, if you expect to make a relevant presentation you would have followed the reports of the meetings, and you would have perceived that this is our procedure.

The CHAIRMAN: Specially, in answer to your question, Mr. Macdonald, the Columbia for Canada committee was advised as to the date on which they would be heard, and they were asked to submit a summary, and they were sent a copy of the first issue of our Evidence. I do not think there was any specific direction given other than that. We are now at page 15. Would you please proceed?

Mr. HAYWARD: I shall have to cruise through it looking to see what I have. Do you mind if I do that?

The CHAIRMAN: No, please do so.

Mr. BYRNE: My anger turns to amusement when I peruse this brief.

Mr. WILLOUGHBY: If we would only let the witness go ahead we might get this thing over in half the time. But we keep interrupting him every few minutes.

Mr. HERRIDGE: Mr. Byrne's remarks always contribute to the amusement of the committee, Mr. Chairman.

Mr. HAYWARD: We are talking of the Columbia. I have brought it up to that point. We feel that this area will become pretty close to being a state of the union inasmuch as control of our water will be in the hands of the United States.

We would ask—and I would ask through the committee, Mr. Chairman, and I mean your committee—why no downstream benefits for water were negotiated in the treaty? Water is the most important material to the United States at the present time. It is what they term their flowing treasure, and I would like to know, and our committee would like to know—the committee that I represent—why there were no downstream benefits for water negotiated in this treaty.

Mr. LEBOE: You will find that in the evidence.

Mr. HAYWARD: That is not a satisfactory explanation as far as our committee is concerned, or the people whom I represent.

Water, we feel, does have a definite and absolute monetary value. In Vancouver, they sell it at 10 cents per thousand gallons. It is some of the best water on the continent, and it still works out at \$132 and some odd cents per acre foot, which is a pretty high price. And when we deliver or store for the United States approximately some 20 million acre feet in toto, and when you consider the flows of the rivers going into the Columbia measured at Dalles, then I say this is a negotiable amount of water which we should be receiving a return for, and that is the position of the committee.

We feel that this would produce by the end of this century a minimal amount, and we feel that diversion from the Columbia and areas non-contiguous to the Columbia will be at a minimum rate of something like 10 million acre feet by the turn of this century. If 10 million acre feet are diverted from the Columbia, of that 10 million acre feet we are entitled to some 20 per cent. Even at a minimal amount of \$10 per acre foot, I think this comes to a fairly healthy sum. Forty per cent of that would be \$40 million, as you can see. This is the crux of our argument; that is, that we have not signed a treaty envisaging the proper result to this country. We admit that control is going to the United States, but why free water? If we are going to store it and that is all, we should be paid for it. We trust the Department of External Affairs will renegotiate the treaty on the basis of downstream benefit for water, Mr. Chairman.

Frankly, the majority of British Columbians, if we are going to give the water away, would rather that we give to the prairies, because we have been assured that the population of the prairies will be limited by this lack of water within the next 20 years, in the southern part of Alberta, and the southwestern part of Saskatchewan.

We feel the Libby dam—I want to make this abundantly clear—is the golden key so far as the Americans are concerned. This gives them control of the territory of the east Kootenays; that is the water resources of that area. Any treaty which envisages diversion for Canadian use without allowing power development is a negation of our rights and eliminates our ability to divert. Any major diversion in this country or anywhere else where pumping is required is going to have to involve water power to develop the electrical energy to pump the water. This is a statement which you have heard from witnesses more competent than myself. The water must run through plants existing on the river. That water which will be introduced I assume is going to increase the potential of the power units on that river system; there can be no argument about that. If that is not incorporated in the treaty, then we have sold ourselves short.

I am not going to go into a travelogue, Mr. Chairman, by going from Vancouver to the Arrow valley, but I am going to say this to you: You flood that valley, and I do not care what you call yourselves, you are not realizing what you are doing to British Columbia and to the people who live in the area, or who want to live in the area. Some of us here should know; we know how far we have to travel through mountain ranges before we see a valley. There are the Selkirk mountains on one side with the Monashee mountains on the other. You go into the Monashee pass from Vernon and travel 100 miles approximately without going anywhere but through mountains and then you hit the valley. It is a place in which to live and to rest, a place of beauty and good hunting. There are sand beaches there. Not one or two miles, but 50 to 100 miles of beaches. I have seen them. If you do not know the value of beaches on this day, then you should come to Vancouver and try to buy a little piece of beach property. I have travelled over more open country in this area around here than I travelled through from Vancouver to the Arrow valley. Seventy per

cent of British Columbia is over 3,000 feet high. Only 3 per cent of the land area is agrarian, and we propose to flood the Arrow valley. If there were any Canadian purpose in it, or any need of our own people, I would agree with you, as I am sure would Mr. Leboe and some others.

Mr. LOBOE: Since I have been mentioned, I might ask whether you have visited the upper Fraser where there is a broad valley with nobody living in it.

Mr. HAYWARD: How high is it, Mr. Leboe?

Mr. LEBOE: Two thousand feet.

Mr. HAYWARD: Can it grow fruit?

Mr. LEBOE: Yes, apples.

Mr. HAYWARD: Not past Kamloops.

Mr. LEBOE: I have apples trees in my own yard.

Mr. HAYWARD: How do they do?

To get through the valley—

The CHAIRMAN: Do you feel we could get through the summary first, Mr. Hayward? Actually, your brief has been read completely by a good many members of the committee and has been glanced at and studied in a cursory way by everybody.

Mr. DAVIS: Mr. Chairman, why do we not start the questioning?

The CHAIRMAN: Would you agree with that, Mr. Hayward?

Mr. HAYWARD: I would prefer to complete this, Mr. Chairman. Under the same circumstances I think Mr. Davis would prefer to complete it.

The CHAIRMAN: We now have taken an hour and 20 minutes.

Mr. HAYWARD: That is not really my time. You were arguing points, I believe, of procedure.

Mr. PATTERSON: I would suggest that the Chairman set the program here and not the witness.

Mr. HAYWARD: I agree, definitely.

The CHAIRMAN: The point does remain that it is an hour and 20 minutes since we commenced, although I quite appreciate that is not entirely your fault.

Mr. HAYWARD: Thank you.

I understand that now, in the green book, I believe, you have recommended a 50 foot increase in Mica dam. We are most pleased to see that recommendation. The position of our committee is that Mica should be raised 50 feet, so that there would be no damage to the valley, no loss of homes to over 1,600 people, and no expense of moving them, and also that you would have a valley with recreational possibilities still remaining. I would like to congratulate whoever is responsible for this.

Now, we want to know whether the dam sites are to be cleared completely. Every conservationist in British Columbia for decades has fought for the clearance of dam sites and no drowning of trees. This has not been assured either in the protocol or in the treaty.

Mr. LEBOE: This assurance has been given by the province of British Columbia, and it is in the evidence which has been before this committee for almost a month.

Mr. HAYWARD: And that we will be forced to clear these areas.

Mr. LEBOE: Mr. Williston gave us that commitment when he appeared before this committee.

Mr. HERRIDGE: Did Mr. Leboe say Mr. Williston agreed to clear this basin in accordance with the proposals put forward by the rod and gun clubs of British Columbia in respect of vegetation and so on?

Mr. LEBOE: He said that more recent experiments in respect of the Kenny dam have shown the fish population has increased immeasurably by the fact there has been a residue of vegetation left in the area, and on this basis they will have to take that into consideration in connection with the dam. The fish and game people have already taken that approach.

Mr. HAYWARD: We are requesting that this external affairs committee make sure that the clearing will be done not just in respect of snags or merchantable timber but of vegetation so that the areas behind them will be of recreational use in the future. I think this is a sensible attitude and one in which we all can agree.

Mr. Chairman, in respect of spawning beds, should we change the level of a stream behind any one of these reservoirs the spawning beds for the fish concerned will be flooded. As you rehabilitate the people who live in the valley so you must rehabilitate the fish who propose to live in the reservoirs. This is nominal and sensible and we trust this committee will make sure it is done. It is not too difficult a task to establish spawning beds. At one time it was nearly impossible but we have proved our ability to do this in the Fraser valley, and it has worked out very well for the reproduction of Chum salmon. The Kootenay area has a terrific number of land locked salmon, one of the best eating sports fish available to anyone, and I pray you make sure they are not decimated so that there will be something for your children to enjoy in the future. Gentlemen, that is why we are here. We ask this external affairs committee in all humility to establish a research board—or, call it what you will—on water and water needs of Canada. We ask you to do this. We feel regardless of what government governs Canada an inventory of our water resources is an absolute and prime essential. We must know what we have. We must know where the population is going to be 20, 30 or 40 years from now and we must predicate the amount of water in the area on that population.

In the United States every man, woman and child uses 1,400 gallons of water per day; 700 gallons are used by industry and approximately 700 gallons used by the individual. The *Scientific American* makes a liar out of the clean waters dissertation, which I received; they say it is 1,700 gallons, which is another 300 gallons a day which people need. You can bring in more people and everything else but you cannot bring in more water. There is no system today to reproduce water from saline or other water at an economical rate for all uses. And, for recreation, in the *Scientific American* they figure \$2,500 per acre foot; for avocados in the desert, \$65 per acre foot. Water is a terrific value to all society. Therefore, we would ask you to set up this board of review or research. We do not care what you call it. But, we think it is an absolute essential that we have an inventory of water resources in Canada in respect of the needs of our people.

Mr. Kennedy had something to say in this connection. He said that we are not a subject people. This is how he put it:

This is a partnership, not an empire. We are bound to have differences and disappointments—and we are equally bound to voice them,—

That is what we are doing here today and some of you do not agree with what I say, but I am voicing my committee's opinions.

—to bring them out into the open, to settle them when they can be settled and to respect each other's views when they cannot be settled.

We ask this external affairs committee, we ask the federal Govern-

ment and we ask our own government to sit down and re-negotiate this treaty along the lines of optimum benefits for the United States and for Canada—optimum benefits for both along the lines of the Tennessee valley authority where all segments and all features were incorporated.

Mr. Chairman, I have quotations from various people but I will pass those over. We do have this new proposed policy of bringing water from the north—as you know, I have a copy of the material here—down into Mexico and east. It is a fantastic scheme but, as you might say, Jules Verne was fantastic not so long ago and now it is just bush league to the kids; they will not even read it.

I have the view of Colonel George Anthony, retired, of the United States army corps of engineers, who said:

There may be occasions (and this appears to be one) where political expediency will magnify marginal benefits out of all proportion to their worth, in an effort to justify an otherwise uneconomic international agreement.

I leave that with you, Mr. Chairman.

We are worried about the American international water policy. We have great experience in that respect. What has happened in Mexico? There are 500,000 acres pretty well alkali now which were formerly arable and about 300,000 people presently without means of support from agrarian use of the soil.

Now, there are two ends to every dog, and we have been patting the wagging end. But, there is the other end, the end that Mexico has been looking into, and literally that end tore the guts out of Mexico. And, I am afraid when he turns around he is liable to tear it out of us. I want you to take a hard look at that before you sign the treaty.

The Americans are the best business people in the world. Morality is something for Sunday and their children but not for business. I have the assurance of the top people in our business community in that respect. Now, when it comes to criticism, I am nearly finished.

Mr. Chairman, I do have something to say to this committee now and I hope you will not interrupt me.

Mr. LEBOE: Mr. Chairman, the witness has asked not to be interrupted, but I should like to state that his statement in respect of the people of the United States regarding church being for wives and children on Sunday is a disparaging remark and should not be addressed to this committee.

The CHAIRMAN: I am sure that statement is not identified with any member of this committee.

Mr. LEBOE: I am just raising an objection to that statement.

The CHAIRMAN: Thank you, Mr. Leboe.

Mr. HAYWARD: This matter involves a question of patriotism, Mr. Chairman, of the people involved. The same people Mr. Chairman are the ones who deliver bombastic diatribes against all who do not accept their draft treaty in toto. They are the only ones who are capable of judgment; they are the experts. No one else knows anything, well maybe General McNaughton knows a little. Yes, he is applauded. But then he is getting old you know and then they leave the inference that he is a doddering old fool and they must make allowances for him.

The CHAIRMAN: Just one moment. I think we better stop this at this point, if you will permit me to interrupt you. I had the honour of serving under

General McNaughton, as I think did other members of this committee, and I must tell you, sir, there is not one member of this committee of whom I am aware that does not hold General McNaughton in the very highest esteem.

Some hon. MEMBERS: Hear, hear.

Mr. BYRNE: Mr. Chairman, this is a portion of the brief that the witness is attempting to read and I see no more reason for it going into the record than any other part of the brief. I do not think we should be subjected to this kind of diatribe.

Mr. HAYWARD: I must say, Mr. Byrne, that we of the Columbia river for Canada committee feel that General McNaughton is the most respected person in our opinion in Canada.

Mr. BYRNE: All right, leave your statement at that.

Mr. HAYWARD: Our committee feels that General McNaughton is a true Canadian and does not change. He does not flip-flop but is sacrificing himself for what is right for the welfare of Canada. He is getting older and anyone would find it a strain to be in this position. I trust that as you have criticized me you will criticize everyone else who criticizes General McNaughton on the basis of his not doing an excellent job at this time.

Mr. PATTERSON: Mr. Chairman, are we being lectured or are we being presented with relevant evidence?

Mr. RYAN: We are receiving a bombastic diatribe.

Mr. BYRNE: Mr. Chairman, I do not think we should be forced to listen to this type of nonsense.

The CHAIRMAN: I think the witness has nearly concluded his remarks.

Mr. BYRNE: No one has cast any of the aspersions that are outlined in that which the witness is now reading. These are complete fabrications.

Mr. HERRIDGE: Mr. Hayward, the remarks which you have just made are not in reference to members of this committee at all; is that right?

Mr. HAYWARD: No.

The CHAIRMAN: Mr. Hayward has indicated that these remarks do not relate to any members of the committee or the House of Commons.

Mr. MACDONALD: To whom is the witness referring?

Mr. HAYWARD: These comments are related to articles in the press. I can support these statements and produce those articles if necessary but I do not wish to do so as I feel they will not help us at all.

The CHAIRMAN: This type of evidence certainly does not relate to that which this committee is here to consider.

Mr. HAYWARD: These comments relate to the feelings of the people toward those individuals who criticize the worth and value to Canada of men such as General McNaughton.

Finally, Mr. Chairman, through you I should like to direct this part of the presentation to the Prime Minister. Is it permissible for me to do so?

This is not the time to conciliate, we have done nothing wrong. Take time to consider your duty to all your people. I am sure the Prime Minister will do so. Yours is not the right to deprive them of their heritage. Man cannot live by bread alone. How can we make you realize Mr. Prime Minister that the average Canadian wants more than anything else to be master in his own house, to control his own destiny as far as it is possible in this world, and it is not completely possible because we must live with the rest of the world. We want to control our own rivers, our own mines, oil, gas, forest and factories. We no longer wish to be hewers of wood and drawers of water for other economies.

Last, but not least Mr. Prime Minister, governments of the people by the people and for the people should not give away, sell, destroy or alienate the natural resources of our people. They are the natural inheritance of our children and children's children.

As we said before, sir, men cannot live by bread alone, nor can a nation without a vision of its future survive.

Mr. CHAIRMAN, if this draft treaty should be signed, if the valley of the finger of God should be flooded, and I call the Arrow lakes valley the finger of God because it looks as though sometime after He looked down and saw what He had literally done by making these two mountain ranges, He decided it was impossible...

Mr. BYRNE: He used more than one finger because we also have the east Kootenay valley. It must have been made by his ring finger.

Mr. HAYWARD: If this draft treaty should be signed and if the valley of the finger of God should be flooded and if the Libby dam should be built, then true it would be that those whom the Gods would destroy they first make blind.

Thank you, Mr. Chairman.

Mr. MACDONALD: Mr. Chairman, I should like to ask the witness whether he adopts the opinions he has expressed as his own.

Mr. HAYWARD: This brief is a general synopsis of how the people feel.

Mr. MACDONALD: I am asking you whether you are prepared to back up the opinions you have expressed in this brief.

Mr. HAYWARD: I think those opinions are valid, sir.

Mr. MACDONALD: Are those opinions you have expressed your own opinions?

Mr. HAYWARD: No, these are the opinions of the committee I represent.

Mr. MACDONALD: Therefore you do not back up the opinions of that committee; is that right?

Mr. HAYWARD: Certainly I back up the opinions of the committee but not as an individual because I cannot.

Mr. MACDONALD: I do not follow your logic. Either you do support these opinions you have put forward or you do not support them.

Mr. HAYWARD: I do believe in these opinions.

Mr. MACDONALD: Mr. Chairman, I should like to direct your attention to a point of privilege. In this brief there is a reflection cast upon this committee and all the members of the House of Commons, and in fact on all Canadians who have any belief at all in democratic parliamentary institutions. I refer you to paragraph 3 appearing at page 5 wherein the committee, which this witness represents, and the witness, express great contempt for this parliamentary institution and all democratic institutions.

The CHAIRMAN: Would you read that paragraph into the record?

Mr. MACDONALD: I do not wish to repeat what is essentially a libel.

The CHAIRMAN: Perhaps at your request I will read paragraph 3 into the record.

Mr. HAYWARD: Mr. Chairman, I intended to tell you that we wanted to delete that paragraph from the brief. I have it bracketed here to indicate that it should be deleted. I am very sorry for that oversight.

Mr. MACDONALD: I should think that you would be very sorry. Are you prepared on behalf of the committee you represent to apologize for this bombastic diatribe?

Mr. HAYWARD: Mr. Chairman, at any time we make a mistake I am prepared to apologize. I admitted at the outset that we can make mistakes.

Mr. MACDONALD: This paragraph represents something more than a typographical error.

Mr. HAYWARD: That paragraph should not have been left in the brief. I am afraid we did not have time to proof read the brief.

Mr. MACDONALD: Mr. Chairman, it seems that each time the witness is challenged he intends to withdraw his remarks. I submit that this submission is a contempt of parliament.

Mr. HAYWARD: Mr. Chairman, I am little bit at a loss.

The CHAIRMAN: It is my impression from reading this paragraph to which you have made reference that it contains nothing more than dirty type language.

Mr. HERRIDGE: To which paragraph are you referring, Mr. Chairman?

Mr. CHAIRMAN: I am referring to paragraph 3 appearing at page 25.

Mr. MACDONALD: Mr. Chairman, I do not feel that any witness should be allowed to refer to this parliamentary institution in this manner. I would suggest that this is a contempt of parliament.

The CHAIRMAN: Perhaps I should state for the record that there is a reference at page 25 of this brief to digging a new hole and moving the house of parliament to it. I take it that is identifying parliament with a privy, is it not?

Mr. MACDONALD: I would agree with that description of the statement.

Mr. HERRIDGE: That is the section the witness has withdrawn, is it not?

The CHAIRMAN: I think Mr. Hayward has withdrawn that section.

Mr. LEBOE: Mr. Chairman, although the witness has indicated that this section was to be withdrawn, he did not point that out before objection was taken. We have had these briefs in our possession and have read them not knowing that this section was to be deleted.

The CHAIRMAN: Mr. Hayward, perhaps I should point out that most of the members of the House of Commons do not regard themselves as being at a particularly high level. No politician does so after being a politician for some time because of the abuses he witnesses. Collectively we do respect this institution of parliament very much. Therefore, sir, collectively we are incensed by anything that appears to be a criticism of this institution.

Mr. HAYWARD: Mr. Chairman, I assure you that whenever I have criticized the institution I apologize. I think the parliamentary system is the only system under which people of our ilk can live regardless of whether we are right or wrong in our decisions.

Mr. MACDONALD: Mr. Chairman, I should like to just state at this time that there has been a contempt of parliament expressed, and suggest that that contempt is characteristic of the whole brief and should be judged with that same contempt it expresses for parliament.

Some hon. MEMBERS: Hear, hear.

Mr. CADIEUX: Mr. Chairman, I have just a few short questions to ask the witness. First of all, Mr. Hayward, what union do you belong to or what union do you represent?

Mr. HAYWARD: It is the A.A. of S.E.R. and M.C.E. of A., which is the Amalgamated Association of Street Electric Railway and the Motor Coach Employees of America. It is an international union and this one division is 65 years of age. We are the pioneer division.

Mr. CADIEUX: So it is an international union?

Mr. HAYWARD: Yes.

Mr. CADIEUX: I have another question. I think the separatism of Quebec was a little bit overplayed in your brief. If you will recall, we had by-elections

early this year in two ridings in the city of Montreal. The total vote that could have been ascribed to separatists was less than 700 in the two ridings. I would like to know if you have read the week end papers. If so, you would have seen that there was a great elation in Quebec on account of the announcement by the premier of that province of the project of General Motors to build in Quebec a \$65 million plant.

Mr. HAYWARD: We are very appreciative of that. I think this was caused through the actions of the Quebec people themselves, as well as Mr. Levesque and the premier emphasizing this fact.

Mr. CADIEUX: It should be included in your submission when judging the attitude of Quebec towards the rest of Canada.

Mr. HAYWARD: There was a section which I did not read, Mr. Chairman. Part of the fault is that I did not read everything. I trusted that some day we would have another premier from French Canada who would, as in the past, put Canada before all else and guard her as he would his own wife. This is a statement from the brief.

Mr. CADIEUX: That is very nice, sir. I have no intention of questioning you very extensively but you refer to the case of Mexico being rudely treated by the United States. If I recall it correctly some so-called evidence was presented to the committee previously by technical people, and it seems to us that the case they made was that the United States was able to dictate terms to Mexico concerning the Colorado river because they were the upstream country. I wonder whether the case with the Columbia river is not favouring Canada because Canada would still be the upstream country in the case of these rivers.

Mr. HAYWARD: You are absolutely right, sir. You put the finger on the nub. If we maintain our present position, we are the upstream country. If we accept the treaty, we will no longer have these rights. We feel we will subvert our rights immediately we sign the treaty because the United States definitely wants to get out of the present situation under the Boundary Waters Treaty of 1909.

I have a quote of Sir Wilfrid Laurier where he says that the day will come when, regardless of the fact that we were forced to accept this treaty, we will be in the driver's seat. In other words, we will be the upstream country and the United States will not be able to tell us that we should not do that which they have already done. That was a statement made by Sir Wilfrid Laurier.

Mr. CADIEUX: You would not say, however, that a treaty could change the geographical position of a country and that the water would not still originate from Canada and that we would not have to a certain extent control over it? Whatever happens we would still be in the position of the upstream country, in the same way that the United States are the upstream country with respect to Mexico in regard to the Colorado river.

Mr. HAYWARD: Unfortunately, I do not think we would want to do to the United States what they did to Mexico.

Mr. CADIEUX: I am not suggesting that; I am suggesting a favourable position.

Mr. HAYWARD: Yes, it would be without this treaty. However, it is the honest belief of this committee that we do not think we will be in a position to say anything once this treaty is signed as we think that the control will then be in the hands of the United States. Dr. Keenleyside put it very succinctly and I have the quotation here from "Progress, a B.C. Hydro and Power Authority publication", which states:

It was agreed that Canada would sell the United States not a certain number of kilowatt hours but a service—the controlled flow of Columbia river water across the boundary in accordance with an agreed plan of operation.

In other words, their vested interests can demand a certain condition, and if you build more vested interests you can then create an increased demand on the water. This is just normal common sense and that is what he is saying.

British Columbia contended that the payment by the United States for this service should at least cover the costs of the three storage dams at Duncan, Arrow and Mica.

The position of this committee is still clear. We feel that control of the water system should not be totally Canadian or totally American. However, it should be a shaped thing if we are to have good results on the Columbia. This river is shared so it should be a co-operative effort and nothing else will do.

Mr. CHATTERTON: Would Mr. Hayward agree that the rather undignified and extreme tone of words used in the brief has done harm to whatever cause this committee may have had?

Mr. HAYWARD: Mr. Chairman, when you feel as strongly as people do at times, it is hard to express it otherwise. I do not know how to explain to you how people feel; I am not that capable. We thought we did what was necessary to bring to your attention how we felt, not technically but how we feel as people, and while it may seem extreme, we in the labour movement do use extreme language. If it is the wrong type of language, I apologize to you, but the way you feel is the way you feel, and once in a while it takes over. I am sorry I made you feel badly.

Mr. PATTERSON: I have just one question. On page 2 reference is made to the printing of 40,000 copies of protest cards. I would like to ask the witness if this refers to the cards that were stacked up in little stores every place along the road so that tourists could pick them up and sign them and send them in, as we were advised they did? Some of them did not know anything about the situation at all.

Mr. HAYWARD: How they were handled after they were printed we do not know. There is always this problem with any public appeal in this form. I would not doubt your word one iota because it is a possibility. No matter how we distribute them, some do get out in this manner, but we did not advise that this be done in this way.

Mr. PATTERSON: That is what was done.

Mr. LEBOE: I have one short question. You refer time and again to your committee. Did your committee ask federal and provincial representatives to appear before it? If so who and when?

Mr. HAYWARD: We wrote to several of them. We have quite a stack of correspondence.

Mr. LEBOE: Did you invite them?

Mr. HAYWARD: I have to agree I do not think we did. I agree it is a mistake.

Mr. HERRIDGE: Mr. Chairman, I have a few questions I wish to ask the witness. Mr. Hayward, would you please tell the members of the committee of your present responsibilities in the labour movement and your position in the community.

Mr. HAYWARD: Frankly, I am just what is termed in common parlance a Joe, but I have been in the past chairman of the B.C. federation of labour's natural resources committee. Prior to that I was secretary-treasurer of

the old British Columbia trade union congress. I was also the natural resources chairman of the British Columbia trade union congress and of the federation for some years. I have served on P.T.A.'s, like everyone else. I do not know whether you have had the experience but they call you "madam president" there, but that does not change the way you feel; you are still a man whether they call you madam or not. I was a representative of the people on the executive of the British Columbia natural resources committee.

Mr. HERRIDGE: Is that the one called by the provincial government?

Mr. HAYWARD: The one called by the provincial government. I must say it was an excellent resource conference.

Mr. LEBOE: It has been an independent body since 1949, has it not?

Mr. HAYWARD: Yes, that is correct—independent, but sponsored by the provincial government, and we are very appreciative of it too, I might add.

I am the Chairman of the educational committee of the Vancouver and district labour council; this is about the fourth term.

I am delegate to this and delegate to that, but I do not suppose the committee wants to listen to that type of thing.

That is my position. I am married; I have three children; and I am very proud to live in this country.

Mr. CADIEUX (*Terrebonne*): When you refer to your own union as being an international union, do you mean by that that it is controlled by the United States?

Mr. HAYWARD: Ours is an international union which, years and years ago learned one thing: that local autonomy is something that one should grant people who know how to govern themselves; and this we have. We have local autonomy.

Mr. HERRIDGE: Mr. Hayward, in his opening statement to the committee the Hon. Paul Martin said, in effect, that the committee must accept or reject the treaty and that no amendment would be permitted by the government.

This being a very interesting question, a number of persons appeared before the committee. Have you any knowledge of the procedures which have been followed on the coast with respect to discussions related to treaties?

Mr. HAYWARD: We would really like to have this committee on the coast, sir. Maybe then this brief could have been different. We have tried to emphasize things and we have over-emphasized them and thereby hurt your feelings. Perhaps if the committee was sitting on the coast and in the Kootenays we could take you into the Arrow valley and show you this, and we could show you what is going to happen. That would have been a wonderful thing. I realize it would be a costly thing for the government to do, but if we make a mistake at this time it could also be costly.

Mr. HERRIDGE: You made some reference to the Arrow lakes valley. Will you tell the committee what personal knowledge you have of the Arrow lakes valley or the Columbia basin in Canada?

Mr. HAYWARD: Mr. Chairman, I have hunted in it. It is a beautiful valley. I do not know how to explain it; I have not the ability. However, it is something one has to see, and first one has to travel through those 70 odd miles of mountain country on either side of it in order to appreciate it. I have been through the Monashee pass, to the Needles, up to Burton, and from Burton to Galena bay and across to Arrow head. I have not taken the ferry; I have never had quite enough time on my holidays to do that. I spend my holidays in British Columbia and always have done so. This year I travelled to the Kootenays again. This fall I hunted in Mr Macdonald's territory, I believe—the east Kootenays.

Mr. MACDONALD: No, that is Mr. Byrne's territory.

Mr. HAYWARD: Anyway, it is a wonderful country—six white tail and one bull elk!

I have been in the Arrow valley and I have not been below on the ferry but I have been up 7,000 feet on the Valhalla ranges, hunting with Mr. Johnson; and, believe me, he is quite a man, and this is quite a country. I have seen grouse there so big that they used to call them turkeys. They are not really turkeys but when we weighed four loaves of bread against one grouse on a balance stick we did come out with the four loaves of bread taking a beating.

Mr. BYRNE: Four loaves of bread would not make the dressing!

Mr. HAYWARD: I could not believe it until I saw it. It is something to see and it is something that one wants one's children to see.

Mr. HERRIDGE: There is one member of this committee who has repeatedly stated that there are 50 miles of sandy beaches between Revelstoke and Castlegar. What is your knowledge of that?

Mr. HAYWARD: I would think that member of the committee, whoever he might be, was making an understatement. In the area between Burton and Nakusp, if you take in the islands that are in mid stream in the Columbia lake and both sides, then there are pretty close to 50 miles right there.

Mr. HERRIDGE: You mean in the Arrow lakes?

Mr. HAYWARD: That is right. Frankly, I think there are closer to 100 miles of good beaches in the Arrow lakes. I think it would be found to be close to 100 miles if it were surveyed. I think it should be surveyed to find out who is making wrong statements, whether I am or some member of the committee or a witness before the committee.

Mr. HERRIDGE: Mr. Hayward, this is a matter that concerns a good number of people in the district. They are afraid that, if the treaty were to be ratified, there would be a duplication of the experience of the pipe line situation that existed when dozens and dozens of United States citizens—and I am not blaming them—came into Canada as landed immigrants and worked on the pipe lines for any period up to a year, and then returned to the United States.

When Dr. Keenleyside was giving evidence he mentioned that no one would be employed unless he had been a resident of the district for 60 days. That is very easily done. What suggestion have you to make with respect to overcoming this difficulty, either by legislation or otherwise?

Mr. HAYWARD: It is a difficult problem to eliminate. We tried last time. I believe it was Mr Wicks who was in office at that time as minister of labour; he is a former member of my union.

Mr. LEBOE: I must object. This has no relevance to the issue.

The CHAIRMAN: I cannot see any relevance.

Mr. HERRIDGE: This is a matter which is under federal jurisdiction.

The CHAIRMAN: But surely this is not a question before the committee. If there is anything to be done to correct our immigration laws, our tax laws or our laws relating to protection of game or to protection of any resources, that is surely another matter.

Mr. HERRIDGE: This is a matter which is under federal control. The witness may have some suggestions to offer on behalf of his labour union which would help the government to overcome a duplication of the situation which happened so frequently on the pipe lines.

Mr. LEBOE: Then let them make them to the proper authority.

Mr. HERRIDGE: A short answer is all that is necessary. This is a matter which comes under our government. We are here to protect the people.

Is the witness prohibited from answering a question of such importance to the working people of British Columbia?

The CHAIRMAN: I do not wish to disallow an answer to any question which is of importance to any class of people in Canada but—

Mr. LEBOE: I object. This is not a matter that should be brought before this committee. Let this type of question be put in a place in which it can be answered. We cannot answer that here. We can be of no assistance whatsoever to the witness on this matter. Therefore, why should we be presented with this problem? We cannot be of any assistance to the witness. If we could be of assistance to him, it would be different. This is completely irrelevant to the matter that is before us.

Mr. HERRIDGE: I take strong objection to that point of view. This is a matter which concerns people who will be employed, and a federal government can take action to protect the Canadian workers.

The CHAIRMAN: Does anyone else wish to speak on this point of order?

Mr. BYRNE: I would be willing and, in fact, quite anxious to listen to what the witness has to say on this matter if his answer is short. We do have reciprocal arrangements which have to be considered. We have someone now inquiring in the House of Commons about 5,000 Canadians who are going to work every winter in the United States and returning every summer. There must, therefore, be some sort of reciprocal arrangement. Therefore, perhaps this matter is relevant and pertinent to our considerations.

Mr. LEBOE: I still say this is not the place in which to do it.

The CHAIRMAN: I have strong sympathy with Mr. Leboe's views, but perhaps the witness should answer this. I would ask him to answer it succinctly and as shortly as possible.

Mr. HAYWARD: The present government has a vocational training program with the provincial government. The new Burnaby Institute of Technology is the place to see it and one can see that they have done a wonderful job. Through this vocational training we should know what we need in the area. We should train these people prior to the time of institution of the program; nobody need come into the area if we have sufficient people in Canada trained and capable of doing the job.

Mr. HERRIDGE: I have one more question, a brief one. The committee received a telegram from the joint council of unions of hydro and power authorities representing some 5,000 employees of this crown company.

The CHAIRMAN: We are not going to read the telegram.

Mr. HERRIDGE: It takes strong exception to the denial of the right to strike by these employees, and it is signed by John L. Hayward. Are you the man who signed this telegram?

Mr. HAYWARD: Yes.

Mr. CHATTERTON: The only correction you have made in your written brief was the elimination of paragraph No. 3 on page 25. May I ask if your committee has an executive?

Mr. HAYWARD: Yes.

Mr. CHATTERTON: Is it an executive body elected by the membership?

Mr. HAYWARD: Yes.

Mr. CHATTERTON: Did the executive of your committee read this brief before it was sent to Ottawa?

Mr. HAYWARD: The majority did, yes, sir.

Mr. CHATTERTON: This brief as presented represents the views of the executive of your committee?

Mr. HAYWARD: I think that would be a fair statement.

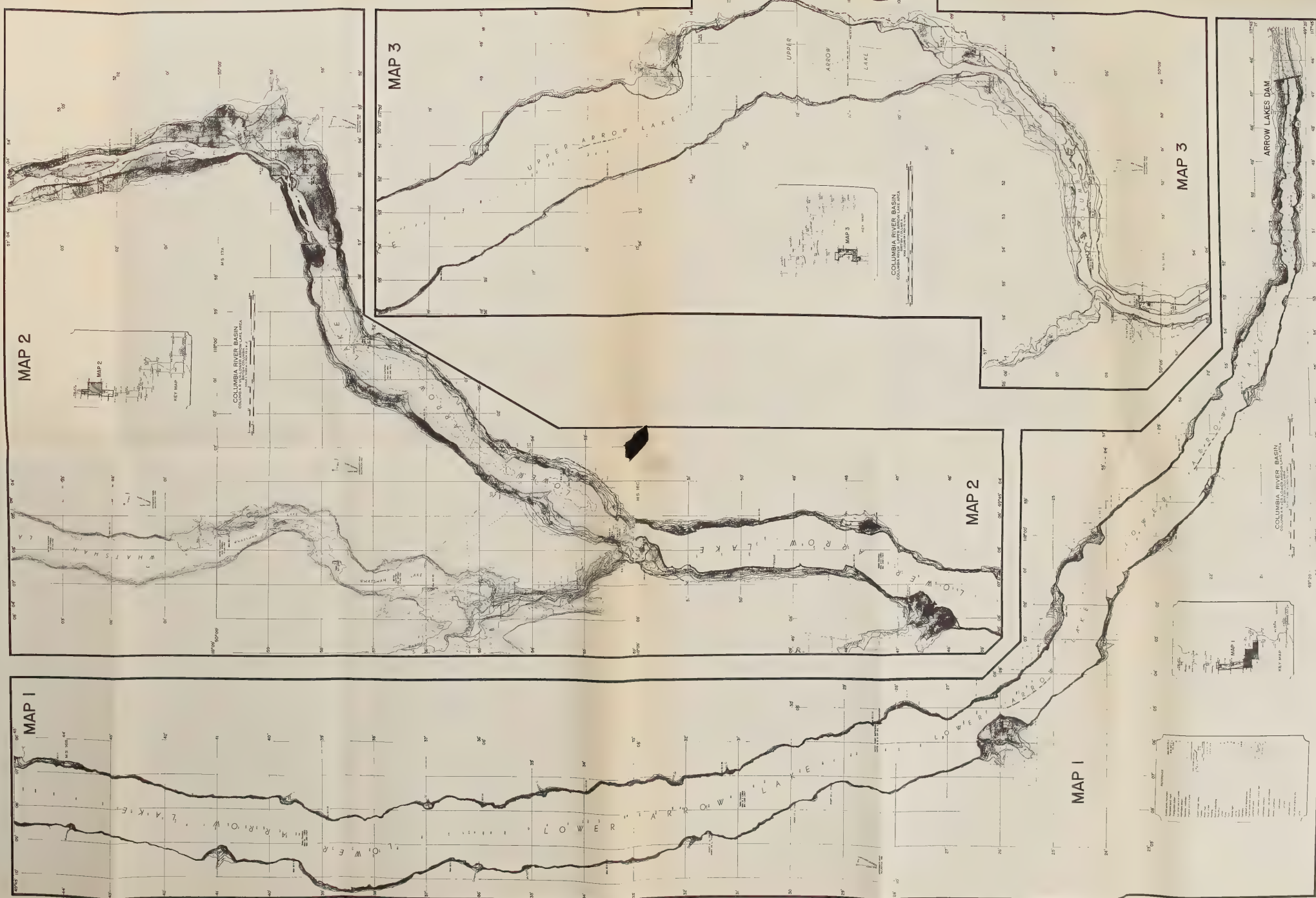
The CHAIRMAN: Gentlemen, I see this is the end of the questioning. Thank you. Now, before we adjourn I would like to say that two letters have been received this morning, one from C. H. B. Frere, legal division, Consolidated Mining and Smelting Company of Canada Limited, Trail, British Columbia, and another from Mrs. Heather Gates of Nakusp, British Columbia. We shall meet tomorrow.

Mr. HAYWARD: I find I made one mistake in the presentation. I forgot to give due credit to the Royal Bank of Canada for their monthly letter of December, 1963, entitled "Saving our Watersheds". This is one of the most beautifully written articles I have ever come upon in Canada, and I have brought along with me copies of it in case any of the committee members wish to receive it.

The CHAIRMAN: Thank you. We are now adjourned until Thursday, May 7, at ten o'clock in the morning when our witness will be Mr. R. Deane of Rossland, British Columbia.

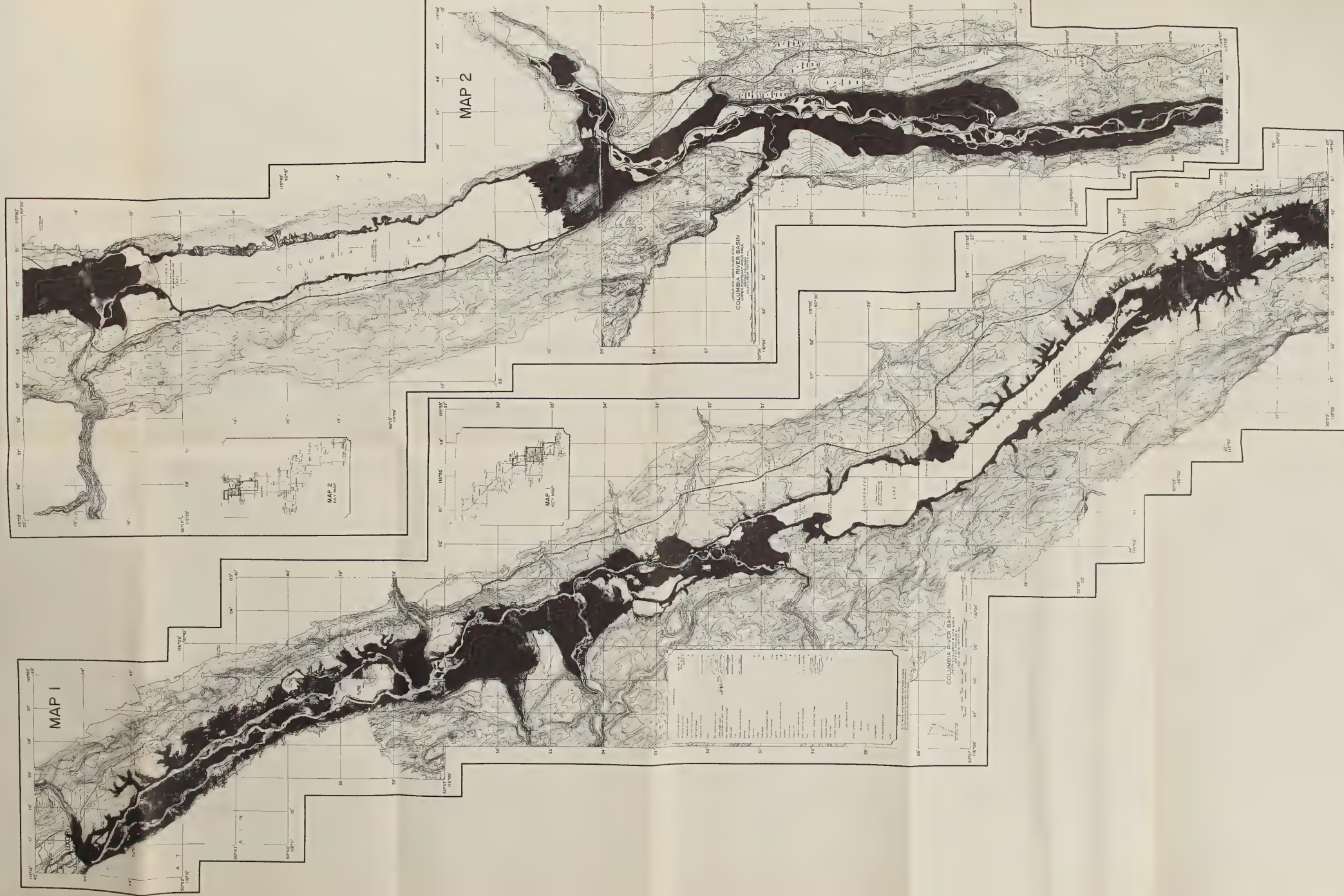
RESERVOIR AREA - ARROW LAKES PROJECT

SHEET 1 OF 2



RESERVOIR AREA - DORR, BULL RIVER-LUXOR PROJECTS

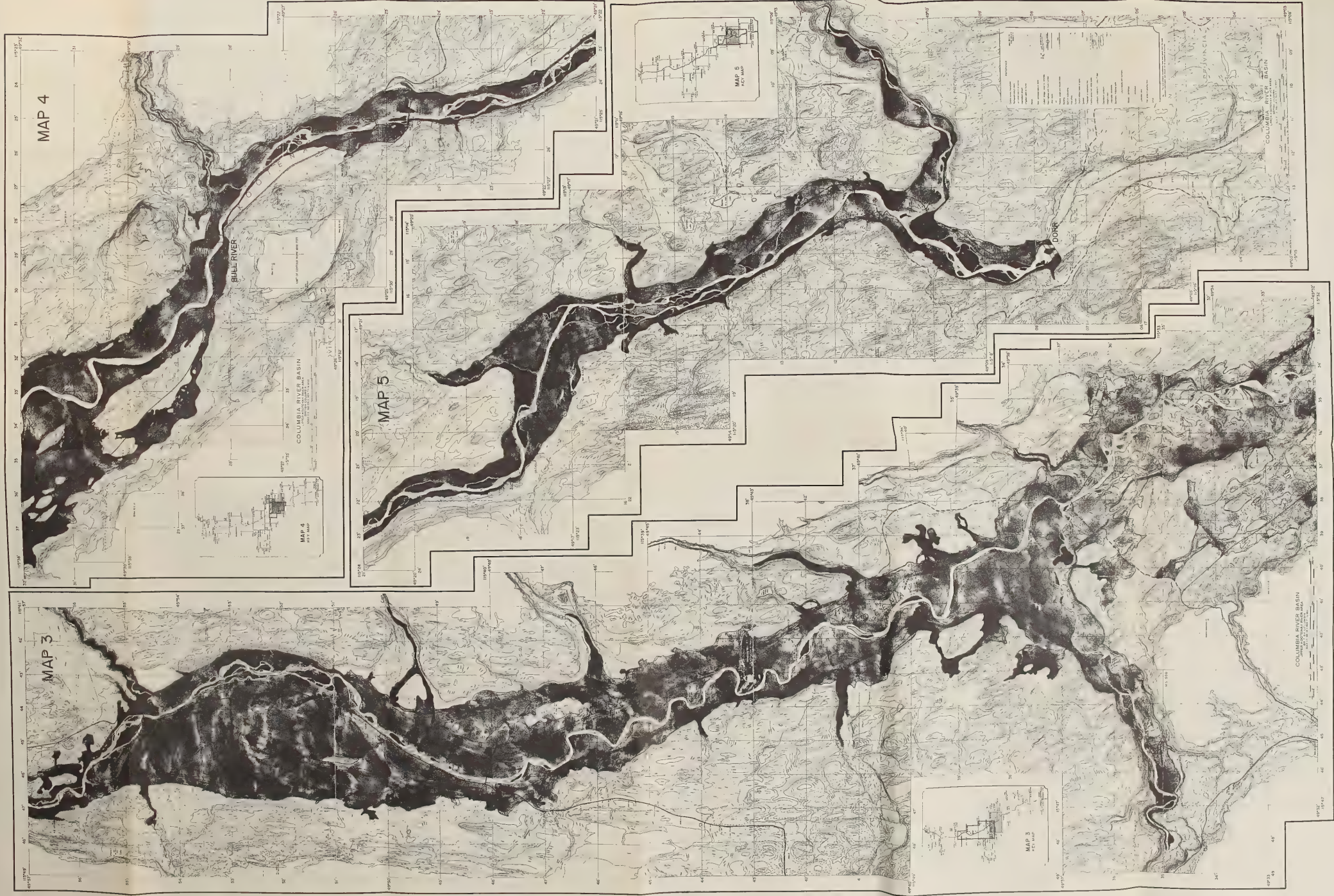
SHEET 1 OF 2

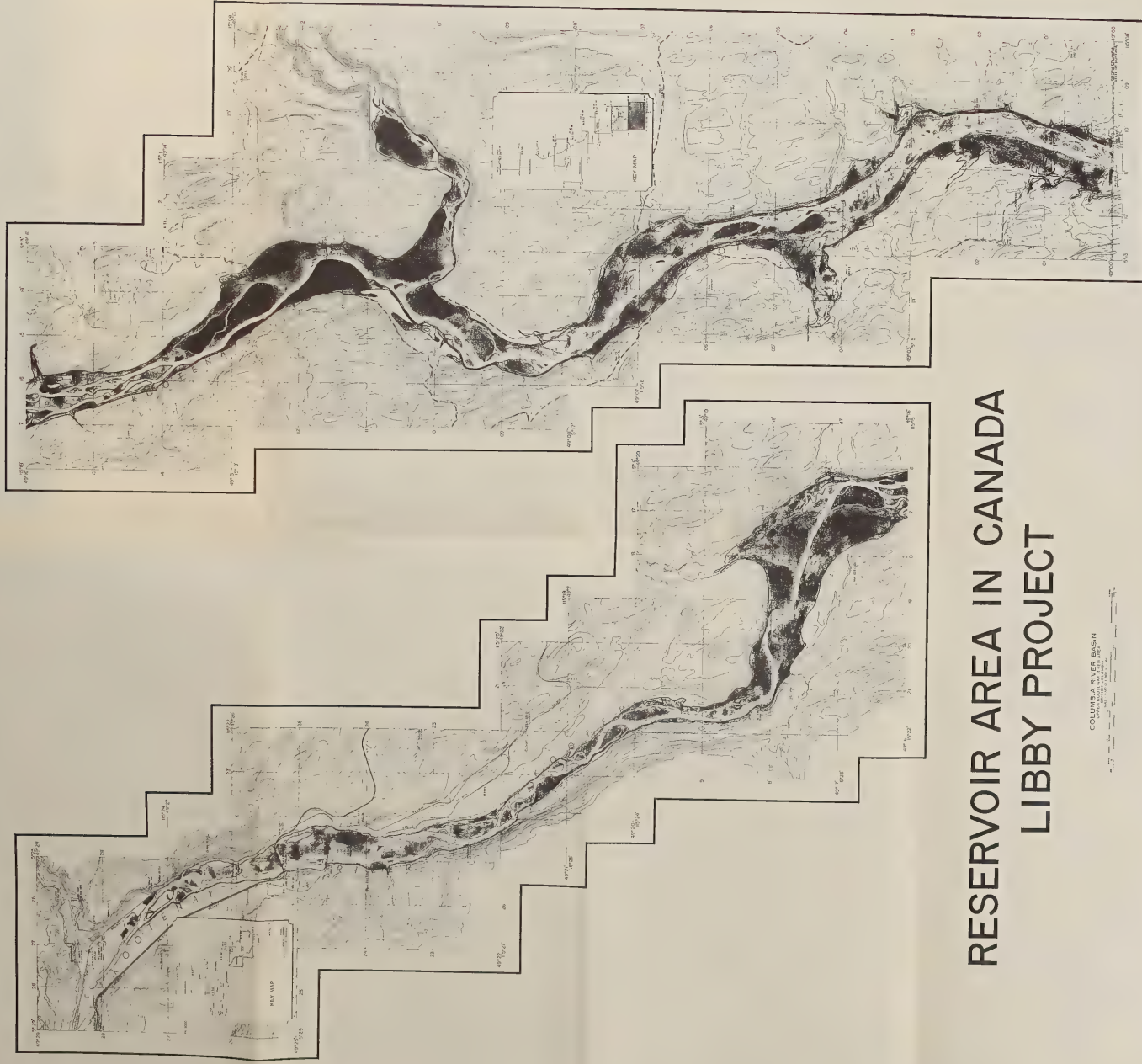


The original of this map is available for reference in the Committees Branch, House of Commons.

RESERVOIR AREA - DORR, BULL RIVER-LUXOR PROJECTS

SHEET 2 OF 2

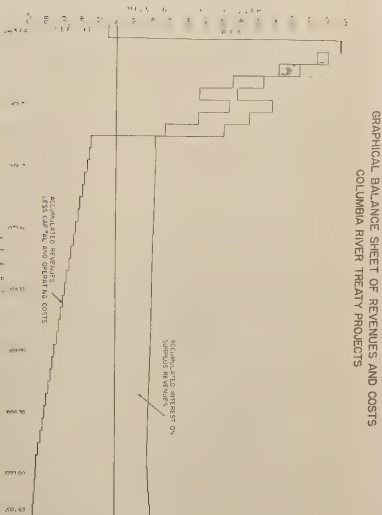




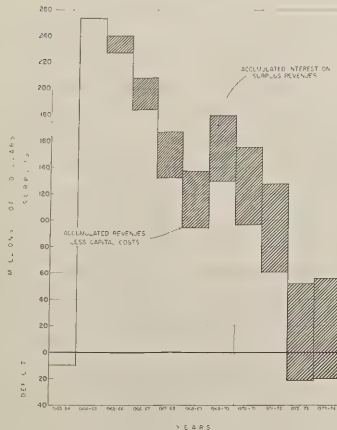
RESERVOIR AREA IN CANADA LIBBY PROJECT

COLUMBIA RIVER BASIN

LIBBY PROJECT



GRAPHICAL BALANCE SHEET OF REVENUES AND CAPITAL COSTS OF TREATY PROJECTS



The original of this map is available for reference in the Committees Branch, House of Commons.

9

HOUSE OF COMMONS
Second Session—Twenty-sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 21

THURSDAY, MAY 7, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

Mr. Richard Deane, P. Eng., Rossland, British Columbia.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (<i>Okanagan-</i>	Macdonald,
Byrne,	<i>Revelstoke</i>),	MacEwan,
Cadieux (<i>Terrebonne</i>),	Forest,	Martineau,
Cameron (<i>Nanaimo-</i>	Gelber,	Nielsen,
<i>Cowichan-The Islands</i>),	Groos,	Patterson,
Cashin,	Haidasz,	Pennell,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Langlois,	Turner,
Dinsdale,	Laprise,	Willoughby—35.
Fairweather,	Leboe,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee

MINUTES OF PROCEEDINGS

THURSDAY, May 7, 1964.

(36)

The Standing Committee on External Affairs met at 10.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Dinsdale, Gelber, Haidasz, Herridge, Kindt, Klein, Leboe, Macdonald, Matheson, Paterson, Ryan, Willoughby (19).

In attendance: Mr. Richard Deane, P.Eng., Rossland, British Columbia.

The committee resumed consideration of the Columbia River Treaty and Protocol.

The Chairman reported that correspondence has been received from C. P. Neale, Secretary-Treasurer, Vancouver District Labour Council; and Wm. Kashtan, Executive Secretary, Communist Party of Canada, Toronto.

The Chairman introduced the witness, Mr. Deane, and since the members had had an opportunity to study his brief, requested the witness to summarize it. Mr. Herridge moved, seconded by Mr. Kindt, that the witness be permitted to read his brief. The motion was defeated on the following division: Yeas, 5; Nays, 8.

The witness outlined his background of educational and engineering experience and produced for distribution to the members a copy of the covering letter to his brief to which was attached a typed list of Registered Professional Engineers resident in the West Kootenay district who have studied the brief and endorsed the stand taken therein. (The original signatures were attached to the covering letter sent to the Chairman.) The witness also tabled two copies in French of the covering letter.

Mr. Deane asked permission to read into the record the list of names of professional engineers who supported his brief. Mr. Gelber moved, seconded by Mr. Haidasz, that the names of the supporters of the brief be *not* read into the record. The motion was resolved in the affirmative on the following division: Yeas, 11; Nays, 5.

Mr. Deane then read his covering letter into the record, summarized his brief, and was questioned.

During the questioning, Mr. Brewin took the Chair at the Chairman's request.

The questioning continuing, at 12.30 p.m. the committee adjourned until 4.00 p.m. this day, on motion of Mr. Cameron (*Nanaimo-Cowichan-The Islands*).

AFTERNOON SITTING

(37)

The committee reconvened at 4.00 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Byrne, Cadieux (*Terrebonne*), Cameron (*Nainimo-Cowichan-The Islands*), Davis, Deachman, Dinsdale, Fleming (*Okanagan-Revelstoke*), Forest, Gelber, Haidasz, Herridge, Kindt, Leboe, Macdonald, Matheson, Patterson, Pugh, Ryan, Turner, Willoughby (20).

In attendance: The same as at the morning sitting.

The Chairman reported correspondence from Premier W. S. Lloyd of Saskatchewan and L. H. Bardal, Vancouver.

The committee resumed questioning of the witness.

The Chairman read into the record a letter from the Legal Division, Consolidated Mining and Smelting Company of Canada Limited, stating that Mr. Deane and some of the professional engineers who endorsed his brief were employees of that company but that the views they expressed were their personal views and were not to be taken as those of the company or its subsidiary, West Kootenay Power and Light Company Limited.

The Committee ordered that maps and charts attached to Mr. Deane's brief be included in the printed Proceedings. (*See Appendix O-1 to O-10.*)

Mr. Herridge rose on a question of privilege. He stated that on Wednesday, May 6, the House had ordered, on motion of Mr. Herridge, the production of a copy of all petitions sponsored by the Nelson Chamber of Commerce signed by residents of Kootenay East and West urging immediate ratification of the Columbia River Treaty, received by the government since January 1, 1964. Mr. Herridge stated that he had just checked with the sessional papers office and found that the papers ordered had not yet been tabled in the House. He pointed out that an official of the Department of External Affairs had handed the petitions to Mr. Byrne before it was tabled in the House and before a copy was made available to the mover of the motion. The Chairman suggested that this is a matter which should be brought to the attention of Mr. Speaker.

The questioning being concluded, the Chairman thanked the witness for his helpful and informative brief.

At 6.00 p.m. the committee adjourned until 9.00 a.m., Friday, May 8, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

THURSDAY, May 7, 1964.

The CHAIRMAN: Gentlemen, I see a quorum.

I beg to report that correspondence has been received from Mr. C. P. Neale, secretary treasurer of the Vancouver district labour council and Mr. William Kashtan, executive secretary of the Communist part of Canada, Toronto, Ontario.

Our witness this morning is Mr. R. Deane, professional engineer of Rossland, British Columbia.

Mr. HERRIDGE: Mr. Chairman, just before you proceed, I have been asked to bring this telegram to the attention of the committee. It is from C. P. Neale, secretary treasurer of the Vancouver district labour council. Is that the one which you received?

The CHAIRMAN: Now, Mr. Herridge, have we not agreed that telegrams will not be read into the record. So far as I am concerned, I have not been reading into the record communications received by the Chairman even though these communications were addressed to all members of the committee.

Mr. HERRIDGE: They are just urging that a public meeting be held in Vancouver, British Columbia.

Mr. PATTERSON: Mr. Chairman, I object to the inclusion of this telegram.

The CHAIRMAN: Of course, any correspondence which is received is brought to the attention of the steering committee when we have a little more time to study it. Acknowledgement is made of each communication in accordance with the decision of the steering committee, and approved by the committee as a whole.

As I said, our witness this morning is Mr. R. Deane, professional engineer of Rossland, British Columbia.

Mr. Deane, would you proceed. I might say that your brief has been distributed. It has been our practice that witnesses will sit down and be comfortable. We have asked witnesses to summarize their brief as succinctly as possible. We would like you to limit it to something less than 30 minutes, if you could. Following this, there will be a question period at which time you can explain any aspects of the brief upon which you are questioned.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, may I point out that Mr. Deane's brief is almost a purely technical one, as a result of which it might be quite difficult for him to summarize parts of it. Those who have read the brief will know that a good part of it involves technical matters.

The CHAIRMAN: This brief has been in the members' hands in advance; they have had an opportunity to study it carefully.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): All I am saying is that it is very difficult to summarize something which has been summarized already in a presentation.

Mr. HERRIDGE: Perhaps we could ask questions on each paragraph.

The CHAIRMAN: Yes, of course.

Mr. R. DEANE (*Professional Engineer, Rossland, British Columbia*): Mr. Chairman and gentlemen, I had hoped to be able to read the brief into the

record. As you know it is quite short. However, if this is against your policy I will have to abide by your ruling. I must say that your 30 minute limit bothers me somewhat. To me, this is a very important brief.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): There is not such a thing as a 30 minute limit.

The CHAIRMAN: Well, I would suggest 30 minutes and if it is inconvenient for you to summarize it in that period of time we will take that into consideration.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This committee has not made any motion in respect of limiting a summary to 30 minutes.

The CHAIRMAN: I suggested we would like a summary which would take 30 minutes; but, if this cannot be accomplished I am sure Mr. Deane will understand.

Mr. DEANE: The brief could be read into the record in less time than that.

Mr. HERRIDGE: I suggest the brief be read into the record.

The CHAIRMAN: Do you so move?

Mr. HERRIDGE: Yes.

Mr. KINDT: I second the motion.

Mr. BYRNE: Mr. Chairman, let us have a little air of consistency in this committee. When Mr. Herridge decides something should be done he wants it done regardless of the practice of the committee.

This request has been made before and has been turned down. Representatives from the Consolidated Mining and Smelting Company, who have been in the electrical business for over 60 years, presented a short and concise brief; I asked it to be read into the record and the committee said no, that it must not be read into the record, and that exceptions could not be made for anyone. I do not propose to give my permission to make any exception at this time.

The CHAIRMAN: The motion has been moved and seconded; does anyone wish to speak on it?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I wish to make a correction, Mr. Chairman. What the committee decided was that the briefs from Consolidated Mining and Smelting Company and from Mr. Higgins should not be included as appendices to the proceedings; there was no decision they should not be read.

Mr. BYRNE: Mr. Cameron has a very short memory.

Mr. PATTERSON: Mr. Chairman, is it understood now we are going to decide on each occasion we meet whether or not the brief is going to be read into the record?

The CHAIRMAN: Of course, the Chair at any time is subject to the will of this committee.

We have a motion by Mr. Herridge, seconded by Mr. Kindt, that this brief consisting of 13 full foolscap pages be read into the record.

Mr. PATTERSON: This matter has been discussed on previous occasions Mr. Chairman, and we have maintained the same principle up until now. If it is understood that each brief is going to be considered individually from here on, then that is another question; otherwise I do not think this brief should be read into the record this morning.

Mr. WILLOUGHBY: Mr. Chairman, I do not think our object is to curtail the witness from giving evidence. In the case of a witness presenting a brief of 50 or 60 pages which, invariably, we have already read, I think we are entitled then to expect a summation of his brief. But, when a witness presents

is with a brief of only 8 pages surely to goodness we do not have to insist we cannot present it in a form which is so brief now. I do not know how the witness can curtail it any more.

Mr. CHAIRMAN: Are there any other comments?

Mr. PATTERSON: I am not in favour of the motion and that is all I have to say.

The CHAIRMAN: All those in favour of the motion that the witness be asked to read his brief? All those opposed?

Motion negatived: Yeas 5; nays 8.

The CHAIRMAN: Gentlemen, I declare the motion defeated.

I would ask Mr. Deane at this time to be kind enough to summarize his brief for the committee. I do not mean to confine you, Mr. Deane.

Mr. BREWIN: Mr. Chairman, I hope you note on the record the protest of some of us against the high handed decision which has just been made.

Mr. BYRNE: Mr. Chairman, I think Mr. Brewin should be asked to withdraw that remark. As you know, we have made decisions like this before; in fact, almost daily.

This group over here have attempted to change the rules to suit their own purposes, and there is no reason whatever for Mr. Brewin to make such a statement. We decided this was going to be the procedure at the beginning and we have made no deviation from it, so there is no reason for doing it now. Furthermore, there is no reason for Mr. Brewin's remarks. This was a democratic vote by the members of the committee and, therefore, was not a high handed decision.

The CHAIRMAN: As a committee we have been dealing with some submissions that have been in excess of 100 pages. We had one the other day which was exactly 100 pages, I believe. Therefore, in those cases, it was not unreasonable to suggest a succinct summary. Of course, this is a much shorter brief, I think this contains 13 large pages. I do not want to confine you, Mr. Deane.

Mr. BYRNE: Mr. Chairman, I am still asking Mr. Brewin to withdraw his remarks in respect of the words "high handed".

Mr. BREWIN: I have not the slightest intention of withdrawing what I said but I will substitute the word "unreasonable" for "high handed" if that will please Mr. Byrne.

Mr. LEBOE: Mr. Chairman, I have one observation I should like to make in this regard. The remark made by Mr. Brewin is only a reflection upon himself.

Mr. RYAN: Mr. Chairman, I think his remark was intemperate. We have voted only to be consistent.

Mr. KINDT: Mr. Chairman, unless we wake up here in this committee we are not going to accomplish anything. We are throttling the evidence which these people have brought to this committee by wrangling among ourselves. This gentleman has come here and has condensed his evidence to 13 pages to save the time of this committee. I am certain if he had been allowed to read his brief he would be at least half completed by this time.

The CHAIRMAN: Mr. Kindt, the motion you seconded has been defeated. It is no longer within the power of your Chairman to deal with it further. Your Chairman will see that there is no throttling of evidence. If necessary, we will meet this afternoon and this evening.

Mr. Deane, will you commence your summary, please?

Mr. DEANE: The first thing I feel I should do is identify myself to the members of this committee and present my credentials.

I was born in England but came to Canada at an extremely early age. I have lived for over 50 years in the West Kootenay area. I received my degree of bachelor of applied science in electrical engineering in 1933 from the University of British Columbia. Practically the whole of my career since then has been with Consolidated Mining and Smelting Co. Ltd. or their subsidiary, West Kootenay Power and Light Company.

I am on leave of absence from Cominco where I hold the position of chief electrical engineer. One of the reasons for this is that my views do not coincide with the official view of Cominco. The officials recognized this and we reached the agreement that I could express my views as an individual citizen of that area. This leave of absence makes me feel a little cleaner and freer and allows me to avoid some of the obvious conflicts of interest which might occur. I do want to stress the point that my views bear no relation to Cominco policy. I should like also to state that I admire Cominco for not putting check reins on me in any way.

Mr. HERRIDGE: They have set an example that others may well follow, sir.

The CHAIRMAN: Thank you, Mr. Herridge.

Mr. DEANE: Some people have asked me why I have stuck my head into a hornets nest like this, and suggested that I should have it examined. I thought perhaps I might be out on cloud nine or some such thing and had better find out from other responsible people what they thought about these things. For this reason I passed my brief among engineers of the district. Those engineers are not all employed by Consolidated Mining and Smelting Company by any means, but they are all engineers resident in the west Kootenay district who would have first hand knowledge of the area.

I should like to read my letter of transmittal of my brief and the names of those supporters, as I feel this is part of my qualification in being here.

The CHAIRMAN: Excuse me, Mr. Deane. We have established the principle that witnesses should come here and offer their own credentials and their own opinions and that people should not come here either as witnesses or, for that matter, as members of the committee, and place on the record information or ideas of other people who are not here for examination. This is the old principle of hearsay evidence not being acceptable. I think it would be quite wrong for you to appear here on behalf of someone else.

Mr. Deane has been asked to be heard by the committee and he comes here in his own capacity. Of course I am in the hands of this committee in this regard.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Deane is not purporting to appear here on behalf of anyone else but is supplying this committee with a long list of competent professional people who have endorsed his position and as he has said, this is merely part of his credentials of his professional capacity which he is presenting to this committee.

The CHAIRMAN: Mr. Cameron, I have not seen such a letter of endorsement from any one of the individuals supporting Mr. Deane, and if there were such a letter I think it would only be fair to the members of this committee that those individuals should appear for examination. Am I being too legalistic in this regard?

Mr. CHATTERTON: Mr. Chairman, perhaps if these people had signed a letter certifying that Mr. Deane is here to speak on their behalf this would be an entirely different matter. If they had sent a letter to the committee stating that Mr. Deane in presenting his brief is speaking for them I think it would then be proper for him to read these names. To my knowledge there has been no such letter filed.

The CHAIRMAN: I certainly have not received such a communication.

Mr. GELBER: Mr. Chairman, whether the decision we took the other day is a wise decision or not it in no way reflects upon Mr. Deane. We decided no

to have the names of supporters read into the record and I think we might just as well abide by that decision. We certainly will respect what Mr. Deane has to say. We made this decision and I think we should abide by it rather than deal with this procedural matter each time we meet.

Mr. DEANE: The individuals to whom I have referred did sign the sheet which was attached to my transmittal letter and the signatures are there on record.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, in view of that statement I suggest that those names should be placed on the record. The signatures apparently were sent to you.

The CHAIRMAN: That is not so.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Are you suggesting that what the witness has said is not accurate? Is this some kind of deception of this committee?

The CHAIRMAN: There is no deception of this committee, Mr. Cameron. Miss Ballantine has been kind enough to hand me a letter dated April 28, 1964 written by R. Deane, professional engineer. Miss Ballantine informs me that this letter has been mimeographed and distributed to each member of this committee.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Did that letter contain those signatures?

The CHAIRMAN: The letter has been distributed this morning.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): The letter does contain the signatures, does it?

Mr. DEANE: I did not get these individuals to sign their names 75 times.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That would be very difficult to accomplish.

The CHAIRMAN: The document that was received by me was in mimeographed form, and is that same document which has been received by each member of this committee. However, I do find in the original document here the actual signatures of these individuals.

Mr. HERRIDGE: Perhaps you should read those names, Mr. Chairman. That is the information which should be placed before this committee.

The CHAIRMAN: I am sorry that I have not read this document before this moment.

Mr. HERRIDGE: Would you mind reading it now, Mr. Chairman?

Mr. LEBOE: Mr. Chairman, the question dealing with the 4,500 names has been discussed by this committee, and we decided we were not going to have those names read. Surely we should not have to make this decision each time this committee meets. We decided that the 4,500 names were not going to be read into the record, and surely that decision of procedure should be followed.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I should like to suggest to Mr. Leboe that these signatures are in an entirely different category. These are signatures of responsible, informed professional people.

Mr. BYRNE: Are you suggesting that the 4,500 people are not informed?

The CHAIRMAN: I think the members of this committee are entitled to know that in addition to the document that was distributed, I believe this morning, which simply sets out a letter from Mr. Deane and a list of professional engineers who have endorsed the brief, there was appended to the original, which has never been seen by myself before this moment, a document which appears to be mimeographed and which indicates that the undersigned engineers endorse the Columbia treaty brief dated March 30, 1964 prepared by R. Deane for consideration of the external affairs committee. The gist of

this brief is that the 1961 treaty should be amended by substituting the Murphy creek dam for the High Arrow dam with other projects to remain unchanged.

Now gentlemen, I show you what is appended thereto which, as I say, I never saw before.

Mr. KINDT: You cannot put that on the record. You have to read the names.

Mr. HERRIDGE: Would you mind reading the signatures?

The CHAIRMAN: I cannot read some of these signatures; I would presume they are the names appearing on this list.

Mr. HERRIDGE: You presume?

The CHAIRMAN: I presume; some of them are difficult to read; there are names here I can read but others I cannot.

Mr. HERRIDGE: Are they identical with those we received in the mimeographed sheet? Would you read those?

The CHAIRMAN: I do not know, but I would be happy to have any member of the committee examine these original documents. Every bit of the correspondence which has come to the clerk of the committee is available to each and every member of the committee.

Mr. HERRIDGE: You do not want to make it available to the public.

The CHAIRMAN: Mr. Herridge, I am a servant of this committee. If the committee wants this read, I would be quite happy to read it into the record. I do not think I can read it but I can at least give the addresses in some cases.

Mr. GELBER: I want to move:

That names of supporters of the brief not be read into the record, and that we vote on it now.

As far as the question of the document being made public is concerned, the list has been given to every member here and to the press as well. I think we should confirm our previous stand.

Mr. BREWIN: Might I speak to this?

The CHAIRMAN: Is that a motion, Mr. Gelber?

Mr. GELBER: I so move. We are just wasting time on it.

Mr. BREWIN: I would like to speak in what I hope is a reasonable way. This is nothing to get excited about. I am quite sure you did not in any way intentionally conceal this from us, and that you did not try to conceal anything from the public or from anyone else. However, on the other hand, surely it is of great significance, when we have a brief of this sort presented by an engineer who wishes to present it to us in detail, to know the names of the 24 apparently qualified people who are engineers in this very area, who have read this over and who have endorsed this brief.

Mr. HADASZ: We do not know whether they read the brief.

Mr. BREWIN: We are not dealing with a court trial where everything has to be proved to the hilt. It has been suggested that some of these opinions are individual opinions, and the witness has told us that a group of his colleagues have endorsed his brief. He might be examined regarding how many of them there are and how their signatures were secured. Surely it is information which should appear on the record concerning the qualified support which this witness has received. This is quite different from putting on a petition 4,500 names of people who may have no qualifications.

The CHAIRMAN: There is one thing I should say, that is that I did receive correspondence which I reported to the committee previously. There was a letter from the Consolidated Mining and Smelting Company of Canada Limited respecting Mr. Richard Deane's submission, but I do not think it adds anything

and I see no purpose in reading it. Furthermore, I frankly did not see any purpose in reading any other correspondence which is not necessary to the committee.

Mr. PATTERSON: Mr. Chairman, I wish to ask whether on general principles there is any difference between this particular matter and the one we faced yesterday when the witness was saying he represented a list of labour unions and the committee denied him the privilege of putting those names on the record. Is there any basic difference in principle between this particular instance and yesterday's decision? This is solely for my information.

The CHAIRMAN: I would not think there is. It seems to me there is one case where a person comes and, as some of our witnesses have done, indicates he is representing a number of people—perhaps not clients but people—whose interests he was delegated to present to this committee. There is the other case of people who are themselves experts and who would like to be associated and identified with the views presented. I think the case here belongs to the second category, the category where Mr. Deane is saying—I am sure perfectly honestly—that other professional experts wish to be identified with his submission. The point I am making—and if I am being too legalistic this motion can resolve it—is that any person who purports to come here and present a view should be subjected to a fair examination of the committee. Mr. Deane told us that there are other people who share his views, but he is the only one appearing before this committee. Heretofore we had no requests from any others to appear. I do not think we should allow people to simply identify themselves with a submission without cross-examination.

Mr. BYRNE: I do not think there is anything more to be said. We had 4,500 people sign a petition, people from the east and west Kootenay. In checking that list I found that 60 per cent of the people were from Arrow Park and each paid 10 cents to have the petition come before the Prime Minister asking him to ratify this treaty immediately. We did not ask that these names be read into the record. When Mr. Martin returns we will have to ask for those names to be put on the record. I want to ask questions about these 25 names. If they want to be put on the record I have no objection.

Mr. CHATTERTON: This brief is signed by Mr. Deane. If these other engineers had been party to the submission of the brief they would have signed the document and would then have been participants in presenting the brief or would have merely appointed Mr. Deane as their spokesman. There is a difference here between merely signing a statement and endorsing it.

The CHAIRMAN: Have you heard the motion?

Mr. BYRNE: What is the motion?

The CHAIRMAN: Mr. Gelber moved that the names of the supporters of the brief not be read into the record.

Mr. LEBOE: I have one observation to make on the motion. If, for instance, Montreal Engineering wanted to follow this procedure, they could have had 350, maybe 500 or 1,000 names read into the record. I am therefore opposed to having the names put on the record.

The CHAIRMAN: All those in favour?

Mr. KINDT: I have a point of order. Is the motion open for debate? Will the Chairman please sit down?

The CHAIRMAN: Do you mind if I stand? I am not going to interrupt you.

Mr. KINDT: I hope not. I would say, Mr. Chairman, that what has taken place in this committee is a disgrace.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Indeed.

Mr. KINDT: It is an absolute disgrace.

Mr. BYRNE: Order.

Mr. KINDT: A gentleman here has brought a submission which I read the other night. I do not agree with all of it by any means but we as a committee have the right to bring before this committee people who have submissions to make. As for mentioning names of other colleagues who are in the same profession as the witness, I see no reason why, in giving his qualifications, the witness should not name the people who supported him and who have signed the document. We should let the man go ahead with his evidence. We have now been here for 35 minutes and have taken up the time of the committee in procedural matters. It is quite obvious that there is an element in this committee trying to throttle the committee and to prevent it from getting the true facts of the situation.

Mr. GELBER: That is no true.

Mr. BYRNE: I have a point of order.

Mr. KINDT: I want to see all the evidence brought before this committee.

Mr. GELBER: You should have been here at all the meetings.

Mr. BYRNE: I do not think a member of the committee should be allowed to get away with this. This is absolutely false. Just because a member wants the committee to change its rules as each witness appears is no reason for saying that we are trying to prevent the facts being brought before the committee. I think the member should be asked either to withdraw from the committee or to withdraw his remarks.

The CHAIRMAN: I am not going to ask this member to withdraw anything. I assure every member of the committee that we are going to hear this witness just as long as necessary to satisfy ourselves that we have heard his evidence in full.

Mr. KLEIN: Will this committee be prepared to hear any one of these men?

The CHAIRMAN: I am sure the steering committee will give it consideration.

Mr. KLEIN: How can anyone say that we are throttling evidence if the committee would hear any one of these men if they wanted to come?

The CHAIRMAN: Will those in favour of the motion please raise their hands. Against?

Motion agreed to.

Mr. DEANE: Gentlemen, to get on with useful work, I would like to read this letter of transmittal to John R. Matheson, Esq. This letter is dated April 28, 1964:

John R. Matheson, Esq.,
Chairman Standing Committee
External Affairs,
House of Commons,
Ottawa, Ontario

Box 1133
Rossland, B.C.

Dear Sir:

I hereby submit under separate cover 75 copies of my brief on the Columbia river treaty dated March 30, 1964, as requested in your letter of April 10.

This brief has been prepared from intensive studies carried out over the last three years and also from knowledge acquired by residence in the west Kootenay district for the last 50 years.

I am attaching three sheets of signatures of registered professional engineers who have all studied this brief and endorsed the stand taken against the inclusion of the High Arrow dam in the Columbia river treaty.

These 24 engineers plus myself makes a total of 25 registered professional engineers, all resident in the west Kootenay district who wish to stand up and be counted on this issue and express their strong opposition to the High Arrow dam.

It may seem that this brief is being submitted at a rather late stage but it must be remembered that the current hearings are the first public forum that has been provided by either the provincial or federal government to discuss the projects included in the Columbia river treaty.

These projects are going to have drastic and permanent effects on the very limited habitable valley areas available in this mountainous country and their implementation requires the most careful appraisal of all factors involved before irrevocable decisions of such long range importance are made.

Yours truly,

R. Deane, P. Eng.

There is a note at the bottom which states:

Typed list of endorsing engineers attached in addition to three sheets of signatures.

Mr. BREWIN: The record will now show a blank.

Mr. DEANE: I obtained a translation of this letter of transmittal for the benefit of any French members of the house or of this committee, and I wish to hand these two copies to you, Mr. Chairman, for the convenience of the members.

The CHAIRMAN: I think it is clear to all members of the committee that there is available, and in their hands presumably, a list of every name that Mr. Deane cares to have associated with him.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): But not on the record.

Mr. BREWIN: Not available to the public on the record.

Mr. DEANE: There may be many other engineers; in fact, other engineers did ask to support my brief but I said I was limiting it to west Kootenay residents with knowledge of the area.

The CHAIRMAN: I am surprised that you have read this letter into the summary of your submission. It is already in the hands of the committee. I presume in doing so you are indicating that the names which appear on the page attached thereto represent all those people—the 24 engineers—mentioned in your letter of April 28.

Mr. DEANE: Yes. I did not want it to be thought that these were the only ones interested. These are the only ones I have approached in the time available.

To continue with my brief on the Columbia river treaty, the first thing that comes up here is that this brief asks that the Columbia river treaty be amended to eliminate the High Arrow dam. Since this brief was written, Mr. Martin has made statements which, on the face of them, convince me that no amendment is possible. Therefore I would have to say that this brief calls for the rejection of the Columbia river treaty.

I think this is extremely unfortunate and, in some ways, unfair. I mentioned before that this is the first public forum which has been made available for the discussion of this treaty. We have been promised these hearings for many years. Now that the hearings have come about it seems to me to be against the grain of British justice to have a big stick of this nature waved above people who wish to criticize the treaty.

To some extent, I feel this treaty is partisan—it has had a rough ride through two parties—although it should have been non-partisan. For a treaty of this nature, which is going to affect the country and the lives of our children and grandchildren for 60 to 100 years, it would seem to me ridiculous to make it a partisan matter.

Mr. BYRNE: I think the witness is simply making assertions in connection with matters about which he knows nothing.

Mr. KINDT: Let the witness go on.

Mr. BREWIN: Is he not entitled to express his view?

Mr. LEBOE: The witness is using this committee as a political platform. Whether he belongs to any political party or not does not matter.

Mr. BREWIN: I am interested in what the witness has to say if it is relevant to our considerations. What he said is distinctly relevant. I am getting a little tired of these throttling elements we have seen again and again this morning.

Mr. MACDONALD: In view of what has just been said and the fact that this witness has said that he has no partisan axe to grind, and of the fact that the brief obviously contains no partisan matters, let us hear the witness' recommendations.

Mr. KINDT: This man is a man of science and he is approaching the matter from that point of view. We should be permitted to hear his reaction. If he has to tie it in with the political aspect, let us hear it.

The CHAIRMAN: Mr. Deane, please continue. I think it would be helpful if you realized that you are here in the capacity of an expert. You have qualified yourself as a professional engineer, and as such we are listening to you essentially on an engineering problem. Therefore, it would be helpful to us if you were to direct your considerations as much as possible to that aspect and not let matters creep in which are not within your special knowledge. However, I am certainly not going to limit you.

Mr. DEANE: Well, gentlemen, I have been a resident of the district for 50 years, and it is absolutely inevitable that my other activities and feelings about this thing, from those 50 years of residence, should influence to some extent and override engineering considerations. I do not wish to be considered solely as an expert witness. I am here today as a resident of this area as well as an engineer. I feel that mine is rather a unique combination in this matter. This is a non-partisan approach which I feel is important. I am not trying to pin anything on any political party. I am trying to do something for Canada which in my opinion seems to be badly needed.

Now, if this treaty were a non-partisan treaty being put forward as a non-partisan matter, I cannot see why, particularly, relative to minor amendments its rejection should require the fall of a government. This is where Mr. Martin, it seems to me, overstepped the bounds of reasonable political activity. But this is something which is out of my field, as you people have pointed out, and I have to abide by our democratic laws and our method of government. I think that the attitude reflects on this committee.

I have read some of the evidence where the words "rubberstamp" have been used. That is most unfortunate. I wish there were some way this could be straightened out so that this committee was in a position to consider seriously changes, whether minor or major, and not to be put on the blocks, as it appears to be.

Speaking then to the protocol, which is said to improve the treaty greatly; I agree that in certain ways it does improve the treaty particularly in firming up financial arrangements. But one thing which could be put in the protocol

and which in my view would have been more useful than the pages of detailed clauses that were put in, would have been a statement that the treaty should be interpreted in regard to its intent and not in regard to its individual wording, where you pick words to pieces.

It is almost a matter of good faith, and if the protocol could have achieved this and said we can make minor amendments by mutual agreement without going back to the heads of states, it would have been really a worth-while achievement, because, frankly, the conception of writing out a treaty like this in detail for 60 years, from my experience in the power business, is one which will produce a conflict, like a straight-jacket, somewhere along the line. Nobody can predict the future in detail, as is assumed in this treaty. This is very unfortunate.

I shall now leave what you might call the political angle, but it is a very strong feeling of mine that we have followed a very poor road in this treaty. We could have got it on a different basis with more co-operation and less detailed clauses.

To get back to the actual changes proposed and the reason we are in the fix we are in, our reasons for wanting High Arrow taken out is that we feel that it is no longer needed, and that it is a destructive project as far as Canada is concerned. The reasons it is not needed now—whereas it may have been considered necessary in 1960 when the treaty was negotiated—are that the Peace power will now be available by late 1968, it is hoped, and therefore cheap downstream power from High Arrow is no longer needed for British Columbia loads.

This is the biggest change that has taken place in the last four years. In addition, the cost estimate for High Arrow has practically doubled, which makes it much less attractive as a money making venture; and third, in a general way, the power picture in British Columbia and in other parts of Canada, I think, has changed even in the last five years. People were concerned that we would be right up against the wall for power with brownouts in view, and that we should aim to develop every piece of hydro we could find, even though it be at a very high cost.

But nuclear technology as well as coal, oil, and gas resources have changed this picture certainly in British Columbia; and it seems to be fully recognized now that this expensive hydro can be displaced quite competitively by other sources. This also applies in my opinion to any hydro which is destructive of other resources. We should be very careful, thinking of the future, to only develop hydro which we are sure is not sacrificing future values of other kinds.

I have listed some of them on the board there. I have divided them into intangibles and tangibles. These intangible values are things which are apt to be overridden by engineering reports and computer studies, because they cannot be fed into a computer. But this is where the judgement of people at the top counts so much.

I would like to give you a little of the history of the British Columbia Power Commission which had a lot to do with the negotiating of this treaty in 1960. This power commission for British Columbia was formed in 1945 with the object of serving areas in British Columbia which were either high cost areas, or were not served at all. You might almost have called it a rural electrification type of thing. The British Columbia Electric at that time was the big utility in British Columbia, and the British Columbia Power Commission, as it was called at that time, started out from scratch, gathering together staff, buying up one or two small utilities, and getting into business.

The only place where they had a very substantial system was on Vancouver island where there was a big expansion of pulp mills between 1945 and 1950, and they developed some fairly large sites on Vancouver island.

They also had a small hydro power system in the interior of British Columbia which they bought from a company called the West Canadian Hydro.

Mr. Weston was the chairman, and he was a man of great determination. But he had what seemed to be an isolationist attitude. He did not appear to want to co-operate with the other utilities, and he insisted also upon building isolated hydro plants such as the Whatshan and the Spillimacheen, with diesel installations of course on the Cariboo.

This is a natural situation. I do not think it is a reflection upon anybody. The power commission started out in that way, and in a sense it tended to have a chip on its shoulder. It has tried to get by without help from its neighbours. However the results have been very unsatisfactory. The Whatshan plant had a rather unfortunate disaster which was in a sense due to this isolationist attitude, when a tunnel developed a leak. A penstock tunnel developed a leak when water came up under an area behind the powerhouse. This went on for nearly two years. However, Mr. Weston and the power commission were very reluctant to shut down the plant to inspect the tunnel because it would have put their customers in the dark—well, not in the dark, but it would have shut down industry for perhaps two or three days. So they hoped for the best, but the best was not forthcoming.

A slide eventually took the whole switching station into the river, knocking out the Whatshan plant, and industry had to go on short hours, but West Kootenay jumped into the breach. It is perfectly natural. Everybody always does it in an emergency of this kind. The tunnel had to be grouted and made safe.

Mr. Weston resigned over this. That was the first five years of the commission. From 1950 to 1955 things did not change a great deal; the commission grew somewhat larger. I think in that period the advantages of interconnection with other utilities began to seep into the minds of the people in this power commission. However, in 1955 Mr. Lee Briggs, the manager of the power commission at that time, became involved in a financial dispute with Mr. Bennett about rates and financing of the commission, and the result was that he and the commissioners resigned for the second time.

A new commission was appointed from 1955 to 1961. You might say this is at age 10 to age 16, so far as the commission is concerned; we are into our teens now on the commission. Mr. Keenleyside has been chairman, and the organization has been maturing; but a very important thing happened in 1959 in that the Columbia negotiations reached a fruitful stage. The draft treaty which had been through negotiation in 1960 was signed in January, 1961.

Now, the commission saw the chance to get up on even terms with their neighbours and not have to be the low man on the totem pole. The way to do this was to build the High Arrow dam. This was the dam which could be built in four years as they said at that time, and which would involve no generation problems for the Commission since the United States, would deliver power of approximately 500 megawatts right at the border. It is no wonder the disadvantages of the High Arrow dam were found to be acceptable, because here they could get a big block of low cost power.

So, the treaty was signed in 1961. Of course, the power commission at that time wanted it ratified right away so that everything would go ahead. However, Premier Bennett evidently had been having one of his famous looks at things, and in the fall of 1961 he expropriated the B.C. Electric and presided at a shotgun marriage of the B.C. Power Commission and B.C. Electric, who had perhaps not been on too friendly terms in the past owing to various points of friction.

From then until 1964 this marriage, you might say, has been shaking down. I do not believe the complete British Columbia Hydro and Power

Authority is really too coherent an organization yet, but it will get there. Anyway, we have now reached age 19 for the British Columbia Hydro and Power Authority and we are faced with this Columbia treaty. The British Columbia Hydro and Power Authority, or the section of it which is basically the original officials of the power commission, is the group which is pushing for ratification of this treaty. You might say, well, why do they not let go of High Arrow, because with the Peace now in the picture and Mica firmly included in the treaty, there just is no really valid fundamental or vital reason now for building High Arrow; we can do without it. In all my discussions with people, I find they all say the same things; even Mr. Martin says that if he were negotiating *de novo*—which I presume means starting again; I do not know if any legal persons here would confirm this, but it is my interpretation—he would try for some other features in the treaty. He was not specific.

We are faced with expediency in this treaty. Engineering-wise we do not need it. Some people say the United States must have it; that they insist on it. Well, I say that from a common sense point of view I do not see why they should. It is of no great advantage to them. Last fall during the provincial election, Mr. Perrault made pronouncements about Low Arrow, and I say where there is smoke there probably is fire. This is an indication that some discussion must have taken place on the possibility of eliminating this dam. So, I have firmly come to the conclusion that it is expediency.

I would like to go over, in this presentation, the principles or rules we should use if we were tough enough and had enough internal fortitude to start again. It seems to me this is what has been so neglected in the original negotiations. I have pointed out where I think the pressures came from, and it seems to me it adds up; it adds up engineering-wise and from a common sense point of view. I sympathize with those concerned. I do not say that anybody was doing anything you might call wrong. I might disagree with the values assigned to different factors, but it was an honest approach to the situation. The present approach is honest so far as expediency is concerned, but from an engineering point of view, I do not think it is. In other words, I feel strongly that a certain amount of camouflage is being used; that is, that certain advantages are being blown up greater than they actually are in saying that we must have this dam.

To get back to the matter of going at it alone, in this brief I have listed the factors which I think should be considered in developing hydro power or actually developing water resources. I have listed hydro power for the water end of it. We have hydro power, and we can make cost comparisons from other sources; we have navigation, irrigation, recreation, pollution and fish, all of which are connected with water. On the land side of it, we should consider the value of the land, the uses to which the land can be put at its elevation and climate, and whatever agriculture has developed or could be developed. There are industrial needs for water; there is living space, as you might call it, residential, lakeshore property, parks, hunting and that sort of thing. When you look these over, some rather obvious principles seem to develop; that is, that you should make your large storage reservoirs where you are sacrificing land at as high an elevation as practicable with inflow and the cost of the dams. The advantages of high elevation storage are that the land is much less valuable for any other use, and it also gives the maximum storage of electric energy; the higher you store an acre foot of water, the proportionately greater stored energy you have achieved. Generally, the object of storing water is, in effect, to store electric energy. Also, storage well up protects the channels of the rivers below against heavy flooding, and they

do this inherently as part of the storage function which is to intercept high flows in spring and early summer and parcel it out through the winter when it is required, for hydro power.

This is one point where I think there is a lot of distortion about firm power. You people have listened, read and have thoughts on firm power by which we evaluate everything, and in an integrated system this is just not so. It is firm energy in general we are after, and if we have many sources of firm energy we usually can draw on them at different times to meet the firm load requirements. In a case like the Columbia, where we can make a profitable agreement with the United States to release water at certain times of the year to suit their requirements the obvious thing is to intercept as much water as possible and store it until the Americans want it. Forget about the firm power; and get the firm energy when you release the water. Fit this firm energy into your system load by using sources such as the Peace, Moran, and so on and enter into a co-operative agreement with the northwest power pool, in the United States. In this way, this energy can be more valuable than firm power, which is power you produce throughout the year on an even basis. I think this is one place we have gone badly astray.

In reviewing the history of the power commission, I find they wanted firm power; they were the small man on the team and did not want to look to their neighbours, for integrated operation. We must not be isolationists but co-operative with other utilities; otherwise we will need a re-regulating reservoir. But, if you join the human race in the power business the re-regulation need will decrease enormously and, in general, it practically disappears. So, this is one of these very unfortunate situations where we have put ourselves in a rut at the start.

Now, by Mr. Bennett's action the power commission and British Columbia electric, were quite forcibly integrated. I would say the Americans have indicated their willingness to co-operate electrically between our Columbia dams and their system. This is perfectly logical; it is one of the cases where two and two make five. If we put our sources together we need less reserve and, in this way, we help each other.

Now, to get back to this business of principles of storage, the advantages of high elevation storages are that it stores the maximum energy for the water available and also gives maximum flood protection downstream—storage reservoirs at high elevations use land of low value for other purposes.

Now, the lower elevations, including our large lakes and main river valleys should be used only for storage and power within limits compatible with the following: minimum flooding of land usable for other purposes; improvement of recreation and living space; improvement of navigation; improvement of agriculture by pumped irrigation and reduction of flooding in high run-off years.

These principles do not seriously conflict with power generation. There may be some conflict, an example of which is Kootenay lake which was subject to an International Joint Commission order in 1938. Actually the West Kootenay Power Company was given the authority to store up to 6 feet above low water on the Kootenay lake provided they did certain remedial works that would reduce the flood levels, namely, the dredging of the channel at the outlet of the lake and putting in a control dam so they could hold the water up 6 feet above low water level and, at high flows, release that water. I think this has worked out extremely well. There were public hearings held. Everyone's right was examined. Actually, this has been a very conservative approach to Kootenay lake, which has a rise and fall of 18 feet or, in the extreme, 23 feet. We are only using 6 feet. But, during the war there was an emergency and a supplementary order was granted to store 8 feet. I do not think circumstances indicated this was harmful.

Further, when the Waneta plant was put on the line in 1954 the need for this storage for Caminco disappeared, and so this supplementary order was allowed to lapse. Therefore, you will see we should use these lakes. This applies to the Arrow, Slokan, Okanagan and Kootenay, at these low elevations; we should use them between their natural high and low levels for storage within a range which does not damage seriously all these other values of beaches, navigation and so forth. The amount of power we sacrifice is going to be very minor, particularly in the long run, because power systems are growing and growing year after year, and what seems a large resource this year or even within the next ten years will look like a drop in the bucket in 50 years time.

I have seen this happen in my rather short career. I can recall the plant we put in at Brilliant in 1944; that was our huge plant, with 90,000 kilowatts. It was twice as big as any other we had. It was the star performer. Then, we built Waneta and now Brilliant sort of goes into the back room and gathers dust. No one is interested in looking at it. One unit in Waneta has the same capacity as the whole Brilliant plant. And, Waneta's day is only so long; there will be bigger ones coming along. Eventually, if you want to look far enough ahead, all the hydro plants will be sort of auxiliary sources of power and we will have to depend on nuclear or other supplies. But, I must say in British Columbia this is a long, long way away. However, you can see it occurring in Ontario.

So, why would we destroy resources that are growing in value throughout the years for a short term advantage in hydro production.

If I may, I would like to get the charts at this time because I want to refer to something in respect of Mica. I do not know whether or not you people have the charts but one I am referring to is figure 4, which shows the pattern of run-off on the Columbia. Now, I do not profess to say this chart is precisely accurate. This is one thing about the whole brief; I am not trying to pin things down to the last decimal point but I am trying to get over the pattern and the significance of these different factors. These flows were taken from a gauge station near Revelstoke, and the pattern at Mica would be very similar. There are no lakes in between these two stations. I have used the percentage in each month at Revelstoke and applied it to the total run-off at Mica. You will see that May, June, July and August are the big run-off months, and this is the flood hazard period.

To protect downstream areas from floods one has to intercept the flow in those months, generally speaking May, June and July. Mica has an enormous storage reservoir, actually 20 million acre feet of which 12 million acre feet can be controlled or withdrawn with the rest in the bottom of the reservoir. Once you seal off the construction openings that water is what is called dead storage.

So we have 12 million acre feet of space available in that reservoir for controlling purposes. If we want firm power out of Mica, and this is power year round continuously, we would have to regulate the flow to this 100 per cent line on this chart. The amount of storage required is that block shown above the 100 per cent line. We would release it in this deficient period where the actual flow drops down to 16 per cent of average. I think this represents about four million acre feet to five million acre feet. That is a very poor use of the Mica reservoir.

If we look at it on a system basis we have got space where we can store all that water and we can take no power out of Mica in May, June and July, for arguments sake, but we would use other resources. One must remember that in these months the system load is lower than in the winter months, so this is a favourable factor in cutting back on a plant of this kind. If we store

the water that comes down in May, June and July we store 8.3 million acre feet. If we go into August we can store up to 10.5 million acre feet. The reservoir has the capacity to do this.

If you have an integrated system what you are doing is storing energy for use in the wintertime when, on general pool calculations, power is worth exactly twice what it is in the summertime. There are utility companies and private power companies which will offer two kilowatt hours in the summer if you will give them back one in the winter. That is why Mica is so much more valuable if used as a winter energy producer than if it is set up as a firm power producer year round, and you use your reservoir to much better advantage. In fact I have heard figures mentioned indicating that a power company will offer ten kilowatts in the summer to get back four in the winter. The East Kootenay Power Company and the Calgary Power Company have a somewhat similar arrangement which at one time was on a 2 to 1 basis. Whether they still have that or not I do not know, but there is a general picture of a 2 to 1 ratio value between winter and summer power. That is the way Mica should be used. The present treaty only assigns seven million acre feet out of Mica which I feel is not the best use of Mica on an integrated system basis.

When you are referring to firm power only, integrated with a limited system, you must realize there is a problem in respect of studies made by Montreal Engineering Company and other consultants in that they were not given the whole continent to survey to see what should be done, but were asked to work this out perhaps integrated with a Peace river development. I think the only study I have seen so far integrated the Columbia power with the Clearwater which is an extremely small potential system. I think this study was instituted when the power commission was looking at the Clearwater and when there was a separation, or an ideological wall between it and the B.C. Electric Company. There may have been a study carried out in respect of the Peace river in the meantime, but in that regard the transmission lines are going to Kemano and the northwest power pool to the south. We are signing up for 60 years and we should not be restricted to making our plans on the basis that we are not going to connect with these other systems. That seems almost absurd to me.

The next chart, figure 5, shows essentially what the United States has offered us for the use of our storage. Figure 5 was made before the protocol was signed when we were going to get power back into Canada. We started off, after we got this 15,500,000 acre feet in operation, with 763 megawatts of average energy returned to Canada. Over the years this was estimated to drop, as shown, down to approximately 200 megawatts. That is one of the bad things about downstream power entitlement. It had exactly the wrong shape required by our system needs. It started off too big and ended up too small. There are reasonable facts behind this idea and I do not blame the United States for putting it forth. The United States said this is what it is worth to the United States and we should work out what we could do with it.

Figure 6 represents the kilowatts converted into the lump sum payment with everything projected on up to 1973.

This curve is well established and I do not think there can be any significant argument with the shape of it. It goes up more rapidly at the beginning to about 10 million acre feet, or 12 million acre feet and then gradually curves over. The significance of this is that the storage above 12,500,000 acre feet is of less value per acre foot than the first added blocks of storage.

I have shown some options here. If we back off the treaty to 12,500,000 acre feet and attain this by using 8.1 million acre feet out of Mica, according to this curve, our equivalent payment in 1973 would be reduced to \$375 million from \$416 million. That is a reduction of \$41 million, but the cost estimates of

the High Arrow and Murphy projects are such that there is an apparent saving there of somewhere of the order of \$26 million up to almost \$50 million depending on whether you leave the generation out or put it in. In my chart on economics I did not have any split of cost, with or without generation, so I had to put it in with generation. It could probably go in without generation unless we need power.

Figure 7 represents the treaty plan and I think everything there is fairly obvious. One thing that gripes me all the time, of course, is this Arrow lakes flooding.

Perhaps I should point out that on the chart here where it indicates the Kootenay river there are some dotted outlines of dams which indicate that anywhere above the Libby power pool you have the option in the future of building the Bull river dam or the Copper creek diversion.

You notice the Kootenay river extends to the left quite a bit above the Canal Flats area where it almost joins the Columbia river. We have the right in the future to divert so many acre feet, I think 1,500,000 at that point, into the Columbia to increase generation at Mica, but unless you have a storage reservoir to absorb the spring freshet you would be in a lot of trouble with channel problems down through the Windermere lake. Certainly one way to avoid this would be to build the Bull river dam plus a small dike at the Canal Flats area, using the Bull river dam as storage to catch this surge which can be released either way, north or south.

This would preserve Windermere lake in the Columbia lakes area and give a controlled flow down into that area which would be valuable. However, in any case this is something which is in our control; we can do it in the future as we please and therefore I have no strong objections.

Mr. DAVIS: Excuse me, do you feel we could do this under the treaty as it is presently written?

Mr. DEANE: Absolutely. We have the right in 20 years' time to divert 1½ million acre feet at Canal Flats. I think it is an excellent feature. I have no quarrel with it. However, the protocol papers indicate a type of diversion different from the one I have suggested. You run it down that channel with no flooding. I take issue with this. You would have serious channel flooding if you tried to run that spring freshet down this rather small channel, instead of down its natural channel to the south. Without a storage reservoir Columbia and Windermere lakes would suffer flooding.

Mr. DAVIS: You were saying that given appropriate structures this diversion is possible economically as well as legally?

Mr. DEANE: There is nothing in the treaty that prevents us from building the Bull river dam.

The CHAIRMAN: I am concerned with the sense that would be made of the evidence without the charts that are being referred to by Mr. Deane. Do we have the permission to include everything that is referred to by Mr. Deane in his evidence? I understand it is agreed.

Mr. RYAN: Could not the dam at Canal Flats regulate the Canal Flats diversion? In other words, would it put water either down the upper Columbia or down the Kootenay?

Mr. DEANE: Yes, but it would not reduce the flow. You get this terrific freshet and you have to have a storage area to give you a controlled release, otherwise you get too large a flow at one time. One diversion structure does not do anything to moderate the flow; it just directs it.

Mr. RYAN: So you suggest putting in the Bull river as a reservoir before the 60 year period?

Mr. DEANE: The alternative would be to build the Luxor dam on the other side. This would give you a storage reservoir to the north. However this is destructive of the existing lakes.

The CHAIRMAN: I wonder whether we could permit Mr. Deane to complete his summary before we put in our interventions?

Mr. DEANE: The figure eight shows the so called McNaughton plan and I see it, although I hesitate to be too specific on this plan. It seems to me there are alternatives to it; it is not all going to be built at once. I think you have been well briefed on this plan and I have just drawn it here for your attention. There is one point I would like to stress here. This shows 15.4 million acre feet of total Canadian storage, which is perfectly correct but I do not think it is completely comparable with the 15.5 million acre feet of the treaty plan because the 15.5 million acre feet would be augmented by 5.1 or 5.05 million acre feet in the Libby dam. So the total storage envisioned in the treaty plan is really 20.5 million acre feet, and the McNaughton plan is 15.4 million acre feet. You are up on that part of the curve and the value there is not as great as it is at the beginning, but this is a more moderate plan.

The plan on which I feel very strongly and which we should be looking at if there were some political way to do it is the so-called conservation plan. This plan is not anything I have dreamed up out of the blue; it is right out of the I.C.R.E.B. report where it was shown as the non-diversion plan with what is called the alternate, in which the High Arrow dam is eliminated. The possible projects listed there were three in number: Non-diversion, Copper creek diversion and Dorr diversion. They all had Murphy creek installed in fact they had the complete development and all the dams installed. There were three alternates to these which eliminated the High Arrow dam and just left the Murphy dam remaining. Therefore, I do not want you to think that this is something I dreamed up on my own.

As I see it this is the plan that achieves the storage which everybody needs, floods the least land and displaces the least number of people. When you take the long view, the economic loss or the power loss resulting from eliminating the High Arrow dam seems almost insignificant. It is listed in this report as 196 megawatts in total of which Canada would be entitled to 98 megawatts. You will therefore have this expensive High Arrow dam with a long range earning power of 98 megawatts—it just does not make sense. If you were putting up the High Arrow dam initially and nothing else, then you could make some economic sense, but when you combine it with these other projects, it really begins to look very poor.

On the last sheet, figure 10, you will see my attempt at a simplified economic analysis of these projects. You will see on the top line we have the projects included in the treaty. The at site power in average kilowatts is probably modified by increasing the height of the dam and juggling the water flow figures, but this is only the potential, this is only for comparison.

The assigned storage for United States control would be 15½ million acre feet, the total cost of the project value up to 1973 is \$448 million, and the flood benefit payment is \$85 million, the net cost is \$363 million and the lump sum payment is \$416 million, leaving a profit, as published in all these papers, of \$53 million.

Everyone who sees this says this is a wonderful deal, but what are the alternatives if you get over this negotiating problem which is artificial in my opinion? For the quickest comparison let us leave out High Arrow as it has become frightfully expensive. Mica and Duncan will certainly give the flood control required by the United States. To go along on the same basis, there is no change in the potential power. The storage available is cut back

to 8.4 million acre feet, if we still stick to this 7 million at Mica. I feel that could be enlarged, but that would not affect the cost of the project. If we use that curve as a guide to the lump sum payment we might expect, it seems perfectly reasonable to me to come up with a \$83 million profit, and we still have our Arrow valley. So I would say this is well worth a second look. Someone else, however, may say, "Oh dear, that 8.4 million acre feet is too far down from 15.5 million acre feet; it is not the same treaty at all, you could not call this an amendment, this is a new treaty".

We seem to have a new treaty anyway, so perhaps my thinking there was not quite justified. To me that is an excellent arrangement, and we have Murphy creek if we want to build it in the future for power, which is our business.

The next two are the ones I would say the power commission were looking at in 1959. Do not build Mica, do not spend all your money on that big project up there; just build Duncan and High Arrow and really go after the dollars. You have no future power production potential but you have a pile of money in the bank and you have lost your valley. I do not mind about whether or not you have money in the bank, money is one of the most variable things with which you can deal in actual value these days. So I came down to the project. It is listed as being equal in over-all benefits. All these six projects were said to be equal in viability. The difference in cost and power was said to be so small that it was within the allowable error that might creep in. One project was as good as another as far as power was concerned.

Mr. HERRIDGE: Would you mind mentioning the names so that it will be clear to people reading the record?

Mr. DEANE: The last group of projects would be Mica, Duncan and Murphy. Murphy is low level storage in the Arrow lakes to the level of 1,402, which evidently had been set with the idea of minimizing damage. This could be varied up and down two or three feet. When you go down, you sacrifice some power; when you go up, you sacrifice some land.

At Castlegar the 1948 flood level was 1,405, so this pool level at Castlegar would be three feet below the 1948 flood level. On the upper lake, which is much the largest part of the lake above the narrows, the 1948 flood level was at 1,410 owing to constrictions at the Burton narrows between the two lakes. The maximum pool level would be eight feet below the 1948 flood level on the upper lake, which would seem to me to be almost an ideal level for beaches, recreation and so forth. This price also includes dredging of the narrows at Burton and the Arrow Park area. I believe in the I.C.I.B. estimate there was \$7 million assigned to the dredging project, which is very similar to the Kootenay lake dredging. One puts in the control dam and dredges out the old natural control. This allows one to drain out floods more quickly and to improve navigation—both very constructive objectives.

The last line gives 219,000 kilowatts of average power at site installed at Murphy. One still has a \$32 million profit. How on earth one can pass up a deal like that is beyond me. It is beyond my comprehension that anyone should say that it is too hazardous to reopen the treaty. The stake is very great; and we should take a long look at it and say that we just cannot consider it on the basis of expediency.

That is the end of the charts, but there is one other thing I would like to stress if I might have about five minutes more.

On the board I have put a chart which lists some words. The first heading, "Intangible Values" is rather significant. However, young, bright engineers—engineers who are now like myself in my youth—go for the words under the other heading.

Mr. HERRIDGE: Mr. Deane, would you mind explaining the chart so that it will be clear to those reading the record.

Mr. DEANE: The chart is divided in two by a heavy vertical line. The heading on the left hand side is "Intangible Values"; the heading on the right hand side is "Tangible Dollar Values". Under the first heading I have listed the words: people, justice, nationhood, water, beaches, and recreation. No doubt there are other words that would fit in there very well. On the right hand side under the heading "Tangible Dollar Values" I have listed things that can generally be expressed in dollars: power, kilowatt hours, and words such as convenience, re-regulation, benefit/cost ratio, computer study, engineering study. Those are all in this tangible area. Down below, straddling the two headings, I have two or three more words: flood control, agriculture, and navigation.

In evaluating projects, how does one put in the value of beaches or the dollar value of displacing someone from their home which has been established for 30 years? That must be a matter of judgment; that is the only way in which one can do it. Therefore, the person who is making these judgments is a matter of extreme importance. Engineers have their views and conservationists and others need to be heard. Some engineers are also conservationists, and I class myself somewhat in that category. However, I think I have changed in the past ten or twenty years. I could have made quite a different decision 20 years ago on this sort of thing from the decision I make today.

If one wants to think of computer studies and cost/benefit ratios, where could one obtain a better benefit to cost ratio than from importing slaves from Africa into the United States? How do you count the cost today?

There is another interesting point on computer studies that I would like to mention. For electricity meters the Department of Trade and Commerce has regulations with regard to accuracy, and they say that all meters shall be adjusted as close as practicable to zero error. That is a very fine objective. However, they say they will accept meters for sealing within a range of plus or minus two per cent of zero error. This means that if you adjust a meter as well as you can and then send it to the Department of Trade and Commerce to be tested and checked, and if it registers 1.9 per cent fast, every 100 kilowatt hours that go through that meter are shown on the dial as 101.9 kilowatt hours. By computer methods one could say, "Well, now, how closely should we set these meters? If we try to set them all at 1.9, how many of them will pass?" Eventually, one can come up with some point at which to set them, and if you feel that is the way to do it they will average above the zero error. This is certainly a darned good benefit for the cost of doing it, but of course it is completely wrong. One just does not do it. If you believe the computer 100 per cent and look at the regulations, you can arrive at a program that would give you a better cash return.

Those might be rather off-beat examples of computer results, but I think they express my idea. Computers should be considered with caution. They should not be considered to be gospel just because they pour out a mass of figures and a mass of paper. It is what one feeds into them and how one evaluates what finally comes out that counts.

It has been said the federal government cannot change any of the projects because the provincial government decides how to use its resources. In this situation, I quite agree that the province should have veto power. In other words, the federal government should not have the authority to do something that the provincial government objects to. By the same token the federal government should have jurisdiction over provincial projects which affect some of those things shown on my chart under the heading of intangible values. I do not think the tangible dollar values are too significant. Values change and dollars are continuously changing. However, when i

comes to lands, people, justice, nationhood, water—not for hydro but for consumptive purposes—parks and recreation, I feel the federal government has a definite responsibility; and the two most important of those matters are land and people.

Surely it is the duty of the federal government to preserve the land of Canada for Canadians. When any land is going to be put out of commission completely, there must be complete and adequate justification for it on a long-range basis. In the Arrow Lakes, as I have pointed out, we are going into it on the basis of expediency, and we are flooding out between 27,000 and 30,000 acres of land forever, creating a permanent loss to Canada of that land. I just cannot see, from the federal government's point of view, that we are getting any reasonable value for this.

The seaway has been quoted. Well, we did it at the seaway, so we should do it here. But this is a ridiculous argument. If we lost land on the seaway, I say we should try to preserve land elsewhere. And secondly, in the west Kootenay area we have narrow valleys. Mr. Byrne has pointed out that the East Kootenay has wide valleys, whereas in the West Kootenay we have narrow valleys. That is quite true. But this to me is no argument for flooding out 27,000 acres in the Arrow valley. It is all the more reason for preserving it. You might just as well argue that we drain the lake down and try to obtain more land in this way in the narrow areas. Surveys show that only one per cent of our land is suitable for agriculture and residential use in the Kootenays. This is in great contrast with the prairies, where large lakes are considered of great advantage, especially in the northern prairies.

I do not think there would be any objection to flooding large areas for the storage of water on the Prairies; but we have these precious narrow green strips in the Kootenays, and somebody has to stand up for them. These are extremely limited areas that we have been blessed with, and we have not been convinced that what we are to get from the flooding of these places is comparable to what we are losing. This is one area where the federal government has an absolute duty to use its power, and I say we will go along with the rest of this treaty, but we cannot accept this flooding of the Arrow lakes for what is coming out of it.

The second point, which is equally important to me, is this matter of people and justice. There are some 1,800 people in the Arrow valley who have had their homes there for many, many years. The present scheme will mean that they will have to get out, because their property and homes are to be flooded.

Mr. HERRIDGE: You mean the ones directly affected?

Mr. DEANE: I am talking about the ones who will be directly displaced. Here again, some projects of vast benefit to Canada might require people to get out of their homes. I think they would accept it generally when they have had a fair hearing and it has been proven to be of an advantage to Canada, which justifies their being displaced. But this is just not the case in respect of the Arrow lakes flooding.

We have a vast melting pot of projects in here. It is not one project at a time. It is all very complicated and confusing so that these people do not know if they are being treated justly or not. But I for one am willing to stand up and say that the advantages to be obtained by flooding this valley are just nowhere near enough to justify kicking these people out. In fact from chart No. 10, I do not see any justification economically, either.

It was somewhat different before the Peace power project was put under construction. The federal government has twice, in the last 60 years, asked people to come forward and fight for Canada. Some of them did not come back. How can the federal government pass up its responsibility to these people. It

was not the provincial government but the federal government who asked for volunteers to fight for Canada. What were they fighting for? I suggest they were fighting for a little piece of Canada in the Arrow valley. The idea of the federal government saying that it is up to the provincial government to determine what is going to be flooded sticks in my throat.

Those are two reasons why. All this material on the right hand side, is fine, but it should be kept in its place. The really important values are on the left side, the so-called intangible values.

I would like to quote a famous Canadian on this matter, just to close my remarks. I refer to John McRae who died in 1918, and what he said was this:

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place, and in the sky
The larks still bravely singing fly,
Scarce heard amid the guns below.
We are the dead, short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie in Flanders fields.
Take up our quarrel with the foe,
To you from failing hands we throw
The Torch—be yours to hold it high;
If ye break faith with us who die,
We shall not sleep though poppies grow in Flanders fields.

Mr. BYRNE: Just before we leave these tangible and intangible charts, I would like to ask the witness one question. It is generally accepted that of the approximately one billion, two hundred million people in the world, about 80 per cent go to bed hungry. Looking at that chart, could the witness say which of those benefits or values, tangible or intangible, are most likely to assist in feeding those hungry bellies?

Mr. DEANE: I would certainly say that hunger must be on the intangible side. I do not see how you can put a dollar value on hunger.

Mr. BYRNE: If dollars represent goods, services, and products, which they usually do, which is most likely to fill the hungry belly?

Mr. DEANE: Agriculture, I would say.

Mr. BYRNE: What about nationhood and justice?

The CHAIRMAN: I have a long list of people who wish to ask questions, and I am sure there are many others. Now, Mr. Macdonald.

Mr. MACDONALD: You made some difference to the number of professional engineers in that area who endorsed your views. Could you tell us how many of those engineers are civil engineers experienced in hydraulics?

Mr. DEANE: No, I cannot, offhand, but I could supply that information.

Mr. MACDONALD: Are they all civil engineers experienced in hydraulics?

Mr. DEANE: Certainly not.

Mr. MACDONALD: You referred to the benefit of technical improvement and you made use of the word camouflage. Are you suggesting that Montreal Engineering has not made an honest statement about the technical values involved.

Mr. DEANE: Not in the least, sir.

Mr. MACDONALD: Perhaps you might correct me if I am wrong, but did you not argue essentially that we should have less specific statements in the treaty and documents involved? You took exception to the fact that the treaty contains so much detail.

Mr. DEANE: I think this is a mistake. From my experience in the power business I would say that such detailed clauses seem to me always to lead to trouble in the future, and especially in a project of this kind.

Mr. MACDONALD: Therefore you would disagree with General McNaughton who wants to tie it down even more specifically to the last drop of water.

Mr. DEANE: I have not seen General McNaughton's submission, but this is my view on the matter.

Mr. MACDONALD: Could you tell me first whether you are an employee of the West Kootenay Power Company, or of Cominco itself.

Mr. DEANE: I am 25 per cent West Kootenay and 75 per cent Cominco. I do not think this is confidential.

Mr. MACDONALD: Have you had experience in the planning and development of a large hydroelectric power system?

Mr. DEANE: Yes.

Mr. MACDONALD: Is hydrology your specific responsibility in this company?

Mr. DEANE: No.

Mr. MACDONALD: I presume Mr. Wadeson has that responsibility?

Mr. DEANE: Well, among others; it is a shared responsibility among many persons.

Mr. MACDONALD: Does Mr. Anderson also share that responsibility with Mr. Wadeson?

Mr. DEANE: You are asking, I think, rather leading questions. I am not speaking for Cominco. I am here on my own account.

Mr. MACDONALD: What I am trying to do is check on the area of your experience.

The CHAIRMAN: With respect, perhaps it is appropriate that I read into the record the letter I received from the company. I think you have been an admirable witness today, and have given a very good presentation, but I think it is only fair that you be frank with the committee and answer, if you know, what are the general duties of these persons who are referred to. You do know I did receive a letter from the Consolidated Mining and Smelting Company of Canada—

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): On a point of order, constantly you have refused to have any documents included in the record, and I do not think we should start now.

The CHAIRMAN: I am not proposing to introduce any information in the record, but I thought it was a rather direct question put to the witness with regard to whether or not Mr. Wadeson, and another name, Mr. Anderson, were hydraulic engineers.

Mr. MACDONALD: If I am embarrassing the witness, I will withdraw the question.

Mr. HERRIDGE: The witness has been completely frank in stating to the committee that he represented himself and was not representing the views of the companies mentioned this morning.

Mr. MACDONALD: I really was trying only to tie down the witness' personal experience in the field of hydrology in particular. I will not press it. Do you support the McNaughton plan, so-called, or is your support given to the conservation plan as referred to in your brief?

Mr. DEANE: My support of the McNaughton plan is limited to the elimination of High Arrow dam; but to answer your question fairly, I would say I do not support the complete McNaughton plan.

Mr. MACDONALD: You would say, looking at the treaty purely from the standpoint of development of projects, that you would support the treaty, the protocol and sales agreement if High Arrow dam was eliminated.

Mr. DEANE: I would.

Mr. MACDONALD: Do you feel that the protocol and sales agreement have improved the original treaty arrangement?

Mr. DEANE: Well, fundamentally it has filled in the financial aspects which were left quite blank in the original one.

Mr. MACDONALD: I do not mind if you wish to sit down, or if you prefer to stand up, that is fine.

Mr. BREWIN: May I ask a supplementary question. You say you did not support the McNaughton plan, except with regard to the elimination of High Arrow. I would refer you to page 8 of your brief where you say:

Not knowing the east Kootenay intimately, I am not in a position to discuss the merits and drawbacks of this plan except to endorse the elimination of High Arrow.

Do I take it that while you are not supporting it, you are not opposing it either?

Mr. DEANE: This is true. I want to confine my brief to the west Kootenay side. What alternatives are you giving me? You can support something and you can oppose it; I am not supporting the McNaughton plan and I am not opposing it.

Mr. MACDONALD: What you are saying is that you are not competent to assess—

Mr. KINDT: Oh—

Mr. MACDONALD: Please let me continue. You are saying you are not competent to assess the development of the east Kootenay.

Mr. DEANE: I think that is stretching it a bit. I have certain strong opinions with regard to the east Kootenay. With regard to the Arrow, I have fundamental convictions, and I am here to put forth my convictions and leave my opinions more or less out of it until I have made sure my convictions have been heard.

Mr. MACDONALD: Your opinions with reference to the east Kootenay are not strong enough to lead you to support the McNaughton plan.

Mr. DEANE: I think that is a fair statement.

Mr. MACDONALD: I understand that in the past you raised some question in respect of the safety of the High Arrow dam. Do you still feel it is unsafe? I think it is fair to point out to you that we have had a number of soil experts who have made a study of the area and have testified to its safety.

Mr. DEANE: I think what you are referring to is what I wrote in the paper about flood control or a menace. If you read that carefully, I think you would find that I referred to a financial menace; that is, that it would cost a lot of money to make it safe and I think that has been proven.

Mr. MACDONALD: You do not feel there is any fundamental unsafety?

Mr. DEANE: I do not question the integrity or the capability of the people building the dam; nor do I question their capability to make it safe.

Mr. MACDONALD: Have you any particular views about the safety of the Murphy creek dam?

Mr. DEANE: Not fundamentally, because we are only storing water lower than the maximum high level at Murphy creek, so if it washed out you would have no major flood; you would just be back to the 1948 flood level.

Mr. MACDONALD: Even though the town of Trail is immediately downstream, you are saying it will not matter whether Murphy creek washes out.

Mr. DEANE: I do not entertain the thought of Murphy creek or High Arrow washing out.

Mr. MACDONALD: As I understand it from your brief, you are proposing that Murphy creek essentially be used for the re-regulation function, assuming power generation at Mica. With the re-regulation values at Murphy, would this not have the effect of reducing the at site power potential at Murphy creek?

Mr. DEANE: This was one of the somewhat camouflaged propositions in my view. Re-regulation has been batted around and around. They will say it will affect and diminish it, but they never say how much. In my view if Murphy and Mica are integrated properly with other resources of B.C. Hydro and the Northwest Power Pool, the conflict is negligible.

Mr. MACDONALD: Would you machine Murphy creek right away, assuming it was agreed in the treaty plan?

Mr. DEANE: If I could find a customer.

Mr. MACDONALD: So, you do not consider it feasible from a generation standpoint?

Mr. DEANE: At this point I think there are possible customers.

Mr. MACDONALD: Do you have any idea what the power would cost if we followed your suggestions at Murphy creek?

Mr. DEANE: If one comes down with a \$32 million profit, it costs you nothing. Considering the treaty package on the whole, within certain limits of accuracy, you will end up with \$32 million in your pocket after you have built everything, including the generation at Murphy, and you will have 215,000 or 219,000 kilowatts available there of average energy. Now, the costs are something which seem to be manoeuvred all over the place. I cannot give you a comparison in respect of what the generation at Murphy would cost.

Mr. MACDONALD: Do you not think that what the power would cost would be relevant to a purchaser?

Mr. DEANE: Certainly.

Mr. MACDONALD: Is it not relevant in respect of the planning of a dam to find out at what economic cost it could be delivered to a purchaser?

Mr. DEANE: They also have to find out what the customer is likely to pay.

Mr. MACDONALD: Well, that is true.

Mr. DEANE: But, for the purpose of comparison and to amplify this, let us say we do not put the generators in at Murphy; that cannot be any worse than not having a customer, and this will save many millions of dollars. You will revert to your \$53 million profit figure.

Mr. MACDONALD: In respect of the question of re-regulation, I would like to refer you to a passage in the Montreal Engineering report which pointed out the greater use of the Mica creek storage for flood control in the McNaughton plan would deprive that reservoir of some of its flexibility for power operation as opposed to the treaty. Have you made any studies on this question of power regulation at Mica under the treaty?

Mr. DEANE: Not in detail but I have had experience on our own plants.

Mr. MACDONALD: Would you reject the conclusion of the Montreal Engineering Company in this regard.

Mr. DEANE: I have not studied the McNaughton plan relative to Mica generation at all.

Mr. MACDONALD: So, you are not really prepared to comment on the re-regulated aspects of High or Low Arrow as they relate to Mica creek?

Mr. DEANE: There is one point I would like to make. There is nowhere that I know of on the Columbia or the Snake where there is a re-regulating reservoir of this Arrow type as proposed. I am referring now to High Arrow; where there is no generation and a tremendous draw down. There are no dams in the United States which have no generation. If it is used for this purpose this makes me wonder whether there is not something artificial about it.

Mr. MACDONALD: I refer you to the fourth head of your intangible values, nationhood. Surely you are not regarding as artificial the fact we have an international boundary? Is that not a real factor here?

Mr. DEANE: That is an artificial factor so far as power is concerned; if you co-operate across that boundary you eliminate that problem.

Mr. MACDONALD: In any event, you do not propose that Canada should go it alone on the development of the Columbia river resources?

Mr. DEANE: What is the alternative? What alternative are you offering to me?

Mr. MACDONALD: I should perhaps refer the question to General McNaughton. You have spoken very strongly in favour of co-operation. Are you in favour of co-operation?

Mr. DEANE: Yes, 100 per cent.

Mr. MACDONALD: On pages 7 and 8 of your brief you refer to the annual drawdown in the Arrow lakes as being detrimental to the recreational value of the lakes. Would you tell me what the natural fluctuation is during the months of July and August?

Mr. DEANE: Now?

Mr. MACDONALD: Well, the natural and current state of nature in any year.

Mr. DEANE: I cannot say, but it would be substantial. It would be rising in June and dropping in July.

Mr. MACDONALD: Do the figures 8 to 12 feet seem out of proportion to you?

Mr. DEANE: No; they seem to be in that range.

Mr. MACDONALD: The Montreal Engineering report shows the reservoir will be quite stable at full elevation during these months of average flow. Have you made any studies which would contradict that?

Mr. DEANE: No, but we are up now above the natural levels; you have submerged the existing beaches and are up amongst the stumps.

Mr. MACDONALD: Do you assume similar beaches cannot be made available in the new reservoir level?

Mr. DEANE: I assume what has happened before will happen again; they will not be at all comparable to the beaches we have at the present time.

I do not say that one or two beaches will not be formed artificially, but if they are left to form naturally they will not form in my lifetime.

Mr. MACDONALD: But you would agree it would be possible, in spite of the re-development of the area, to form beaches?

Mr. DEANE: I would say it would be financially impossible to form beaches comparable to the existing ones.

Mr. MACDONALD: Is it not a fact it would be preferable during the two dry seasons of the year to have the water level stable instead of having the large disparity we now have.

Mr. KINDT: There is no disparity.

Mr. MACDONALD: Mr. Kindt is mumbling there is no disparity. There is a disparity of 8 to 12 feet.

Mr. DEANE: The Montreal Engineering Company did not spell out what they meant by constant level.

Mr. MACDONALD: I would have to take a look at the appendix but my understanding is that it is a stable level.

Mr. DEANE: I did see the result of one study in respect of regulation on the Arrow, which was not made by me. This study showed a much larger range than that. In other words, in some years the reservoir never did fill. I suppose that would be in a critical water year. I do not know how much below it was but I understand it was quite a substantial number of feet.

Mr. MACDONALD: But the same disadvantage would apply to the natural level of the lake as well, would it not?

Mr. DEANE: Well, I do not buy the idea that the High Arrow dam will produce significantly more stable levels.

Mr. MACDONALD: Have you examined the Montreal Engineering Company report in this regard and, if so, what are your conclusions?

Mr. DEANE: No, and I do not know what their terms of reference are. As you know, this is important. The Montreal Engineering Company are highly skilful and do what they are told. But, very often they are quoted without the terms of reference included.

Mr. MACDONALD: But if their general terms of reference are to examine the relevant matters of the so-called McNaughton plan as opposed to the treaty plan this would give them a rather broad scope.

Mr. DEANE: I would like to know more.

Mr. MACDONALD: Are you saying that you are not competent to judge their statements?

Mr. KINDT: That is unfair.

Mr. DEANE: I might be if I had the information.

Mr. KINDT: I do not agree with Mr. Macdonald's use of the word "competent" and I think he should withdraw it.

The CHAIRMAN: Gentlemen, the word "competent" does not have any insulting connotation in English and, Mr. Kindt, this is the second time you have wanted this word withdrawn.

Mr. MACDONALD: Mr. Chairman, Mr. Kindt is talking nonsense. The witness said he has not examined the report and any sensible person would recognize if he has not had the opportunity of examining the report he would not be competent to pass judgment on it.

Mr. BREWIN: I do not think the word should be withdrawn but clarified. The word "competent" is ambiguous. It can mean lack of competence, ability or skill but, on the other hand, one might not be competent because he has not been given the opportunity to examine the evidence. The only trouble with Mr. Macdonald's question is that it might imply on the part of the witness a lack of competence.

Mr. MACDONALD: Mr. Chairman, I seem to have a lot of coaches.

Mr. Deane, may I put the question this way: you are not in a position to pass judgment on this question because you have not examined the report?

Mr. DEANE: That is correct. I am sorry if I misunderstood the use of the word "competent". I took it you thought I did not know what I was doing.

Mr. MACDONALD: I do not know why members of the committee have to endure these closure tactics from the right and the left but, Mr. Chairman, I take great exception to it. The hon. member to my right keeps throwing in remarks. After all, he is sensitive enough himself when members object to the relevancy of his questions.

Mr. KINDT: Mr. Chairman, we want a fair and an unbiased hearing. Now that you have stated your question correctly—and we agree with it—let us get on.

Mr. MACDONALD: Mr. Deane, do you consider any of my questions to be unfair?

The CHAIRMAN: I do not think that really is relevant.

Mr. MACDONALD: If I cannot ask questions in a reasonable manner I do not think I should have to remain.

Mr. BREWIN: A very childish display.

Mr. KINDT: Very typical of him.

Mr. BREWIN: He is asked to be fair and he goes out in a huff.

Mr. LEBOE: That is not correct. He was being fair; he reworded his question.

The CHAIRMAN: The first time the word "competent" was used I listened very carefully because I was sensitive to the possible interpretation which would be put on it. If anyone listened carefully to what Mr. Macdonald did say—and I do not know if it became part of the transcript—it would be noted that the continuation of what he said made it clear that what he was referring to was being competent in the sense of having an adequate background of the situation. This was quite clear in the first question. There was an intervention from Mr. Kindt after the word "competent" which was so quick that I do not know whether it is in the transcript.

Mr. DAVIS: Mr. Chairman, first I should personally like to compliment the witness on the comprehensiveness of his approach and the lucid way in which he has been describing these alternatives. I should also like to compliment him on what I might even call with a small "I" his liberal attitude to our international relationships, because what his proposal appears to count on, and I hope he will correct me if I am wrong, is a substantial interchange of electricity north and south is that so?

Mr. DEANE: That is right.

Mr. DAVIS: In other words, you are saying that we can reduce the scale of some of the storage in Canada as long as we are prepared to modify our power production in the country in a way which fits in with power production elsewhere?

Mr. DEANE: I should like to say that this changes with time. As the British Columbia system increases in size the need to rely on this co-operation with the United States is definitely going to decrease, so if there is any bind there it is only a temporary one, as I see it, and we are not putting ourselves forever in the thrall of the United States in respect of this matter. All reasonable approaches would indicate that both sides would benefit by co-operation so why should they not co-operate?

Mr. DAVIS: You are saying that while in early years the amount of power we can produce at Mica is comparable to the total sale of power in British Columbia now by utilities, eventually an interconnection through Canada could offset the highly variable output that would be produced at Mica creek?

Mr. DEANE: I have enough faith in British Columbia to feel we can do this eventually without the United States. I am not trying to act as an isolationist. If there is a trans-Canada grid well and good but we do not have to have it. We are going to grow large enough to handle our own integration problems. This may take a number of years but it will be reached eventually.

Mr. DAVIS: In other words, your conservationist approach, if I may use the word, limits the average in Canada to the corollary of individual regulation or to interconnected optimums through relationships with our neighbours, as you would do it; is that right?

Mr. DEANE: That is quite correct.

Mr. DAVIS: In this context, if for a moment you would think about the Libby reservoir, and the context in this case is the treaty, are you particularly alarmed by the fact that the Libby reservoir may at times be discharged in somewhat different routines from that which might be required continuously to produce continuous power in Canada in the west Kootenay plant? Are you alarmed about this fact?

Mr. DEANE: No I am not because as I pointed out, I am not thinking in terms of continuous power from each project, but in terms of meeting the load from multiple resources, and if Libby is backed off we will look somewhere else.

Mr. DAVIS: So really you are looking at two levels or stages of negotiation, one having to do with water of the character we have in the treaty and one having to do with power sales across utility boundaries, if not across international boundaries? You would like to see an arrangement made now to interchange Mica creek power, for instance, with United States as a necessary complement to the treaty?

Mr. DEANE: That is a very desirable complement. Mica generation is some distance away, and with full co-operation it might even be put off somewhat further to save transmission costs. That is, we should use Mica to the fullest extent as a storage reservoir within economic limits. I think one might find then that the full installation of generators at Mica would be a long way off. Mica would be the top reservoir on the Columbia system. One is not looking at a 570 foot head but at a 2,475 foot head. If you pull this down 75 feet it represents a very small proportion of the 2,475 feet to the ocean and most of it will eventually be used.

Mr. DAVIS: Could you describe or contrast the use of the Mica reservoir, first, under an arrangement you would propose and, second, under the treaty arrangement, or the maximum on site continuous power arrangement that other people have described? What would be the seasonal factor in those two cases and the variation at Mica creek?

Mr. DEANE: Mica operated primarily for winter energy production, which I feel is its best function owing to its position in the system and its large reservoir capacity, would mean completely cutting off the outflow in May, June and July and perhaps part of August, storing at least 8 million acre feet each year and releasing that during the winter for extra power production in Canada eventually, but also in the United States immediately. Of course, this would make irregular power production at Mica, but with the proper co-operation the load is still served and it is served more economically because we would be producing more of this winter power at Mica which is on the average worth twice what summer power is worth. That is the way I think this reservoir should be used. I think we should get away from this isolationist thinking. Even restricting this to British Columbia, the river runs to the ocean and the power plants are there and can be used very effectively with proper co-operation.

Mr. DAVIS: Do you not think that given the treaty and the physical water arrangements that appear to flow from it, the time will come when other considerations, principally economical, will dictate a variation in Mica output, such as you have mentioned, and that interconnection at least will permit this

scheme of yours as far as Mica creek is concerned to be carried out, in full or in part?

Mr. DEANE: I think this will come about, but what really upsets me is that we have used the other regime to justify flooding the Arrow lakes.

Mr. DAVIS: Mr. Deane, I think many of us have been very sympathetic toward this problem of flooding the High Arrow valley, and I think many of us have thought about Mica creek as being the answer to everything, namely, power production as well as control. The principal argument against that solution has been that it did not produce so called firm or continuous power. However, another problem has existed, namely, the fact that a comparable amount of new water is arriving in the Columbia below Mica creek, flowing in from various streams around Revelstoke as well as on down the Arrow lakes, and that water would not be regulated at all if there was no project on the Arrow lakes; is that right?

Mr. DEANE: The Murphy creek project would regulate that water to the extent of three million acre feet.

Mr. DAVIS: Yes.

Mr. DEANE: That is not an insignificant amount by any means. We have operated the Kootenay lake project with only 673,000 acre feet.

Mr. DAVIS: You think the Murphy creek project as you have outlined would substantially regulate this new water that enters below Mica creek?

Mr. DEANE: Particularly if you cut Mica right off and do not insist on firm power from Mica. This makes the Murphy creek reservoir much better able to regulate the inflow below Mica because it does not have to look after Mica power discharges that would be caused by firm power production. Continuous power production at Mica would mean release of water at an awkward time for Murphy creek to handle it.

The ACTING CHAIRMAN (*Mr. Brewin*): I should announce that the Chairman has just coerced me to sit here briefly. If anyone objects very strongly they can vote me out and I will not feel badly.

Mr. GELBER: We like you in that judicial role, Mr. Brewin.

The ACTING CHAIRMAN: I shall try to be judicious.

Mr. DEACHMAN: You look very distinguished.

Mr. CHATTERTON: What time do you propose to adjourn?

The ACTING CHAIRMAN: I think we should adjourn fairly soon.

Mr. CHATTERTON: Maybe we should adjourn now rather than go on for another 15 minutes and not satisfy anyone.

The ACTING CHAIRMAN: At least seven more members have indicated their desire to question the witness, so it is obvious we are going to have a further prolonged session.

Mr. CHATTERTON: We should have another session with this witness maybe this afternoon.

Mr. PATTERSON: Is the time for adjourning in the morning not fairly well established at 12:30?

The ACTING CHAIRMAN: I believe the steering committee did have such an idea in mind. It is after 12:30 now.

Mr. GELBER: I would like you to be precise. It will be 12.30 in four minutes.

The ACTING CHAIRMAN: Knowing this committee, it might take more than four minutes to decide when to adjourn and where to adjourn to. I would therefore like to have a motion for adjournment.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I move adjournment until four o'clock this afternoon.

The ACTING CHAIRMAN: Is there any discussion of this motion? All those in favour of the motion?

Motion agreed to.

We will meet at four o'clock.

AFTERNOON SITTING

THURSDAY, May 7, 1964

The CHAIRMAN: Gentlemen, I see a quorum.

I beg to report that since reporting communications this morning I have received a telegram from Premier W. S. Lloyd of Saskatchewan and a letter from L. H. Bardal of 2845 West Thirteenth Avenue, Vancouver 8.

Mr. HERRIDGE: While you are referring to correspondence, Mr. Chairman, would like to draw the attention of the committee particularly to a letter addressed to you dated May 22, written by a Mrs. Heather Gates, in which she indicates that the women of Nakusp strongly challenge certain statements made by Dr. Keenleyside with respect to beaches.

Mr. PATTERSON: I think it is a little out of order, Mr. Chairman, is it not, to place on the record contents of communications?

The CHAIRMAN: Mr. Herridge has pointed out that there is a letter in the file.

Mr. HERRIDGE: I would like members to read it; it is very informative.

The CHAIRMAN: I would like members to co-operate with the Chair by not putting communications they have received or which the committee as a whole has received, into the record by way of questions and statements.

Mr. Davis, have you finished questioning this witness?

Mr. DAVIS: Yes.

The CHAIRMAN: The next member on my list of those members wishing to ask questions is Mr. Deachman. Do you have any questions, Mr. Deachman?

Mr. DEACHMAN: Not now.

The CHAIRMAN: They have been covered?

Mr. DEACHMAN: Yes.

Mr. HERRIDGE: Mr. Deane, can you tell us whether you came here at your own expense?

Mr. DEANE: That is as easy a question as I am likely to run into. I came here at my own expense and, as I said before, on unpaid absence from the company for which I work. This was at my suggestion; I felt more free to express my opinions as a long term resident of west Kootenay area without any ties, however slight they might be.

Does that answer your question?

Mr. HERRIDGE: Yes. There was some suggestion that it was not quite clear in the minds of some people whether you were speaking for yourself, and I thought you had made that clear in your opening remarks. You said you were speaking as a resident of Kootenay west and not in any official capacity.

Mr. DEANE: I thought I had made it clear, but there is no harm in repeating. I am expressing my own opinions. However, I am endorsed by other engineers in the west Kootenay area who were mentioned previously.

The CHAIRMAN: In case my reference to a letter left anyone in any doubt, I would be pleased to read this letter from the corporation.

Mr. HERRIDGE: There would be no objection to that whatever.

Mr. DEANE: I will be very glad to have that in the record.

Mr. HERRIDGE: I think in fairness to Mr. Deane, he has stated his position quite clearly, but it would be informative for the committee to have the letter read.

The CHAIRMAN: This is a letter written to me as Chairman of the committee by the Consolidated Mining and Smelting Company of Canada Limited written by C. H. B. Frere, General Solicitor, under the date of May 5, 1964:

Dear Sir:

We have had handed to us by Mr. Ritchie Deane, one of our engineers a copy of his letter to you with which he forwarded a brief on the Columbia river treaty and protocol. Attached to the letter is a list of professional engineers who endorsed the brief, many of whom are employees of our company or of our subsidiary, West Kootenay Power and Light Company Limited. As stated in the attachment to the letter, in endorsing the brief, the engineers listed are merely expressing their personal views. Their views, and Mr. Deane's, are not to be taken as those of our company or of the West Kootenay Power and Light Company Limited.

Yours very truly.

That is precisely what Mr. Deane said, I thought, in his opening remarks and that is why I did not read it.

Mr. HERRIDGE: Yes.

One of our members this morning, Mr. Deane, asked you if you were a hydrological engineer. This is a new species as far as I am concerned; I have never heard the term before. However, in order to clear up the matter of your experience in the minds of the committee members, would you tell us of your experience in hydro generation in the transmission field and the planning in this field.

Mr. DEANE: I do not profess to be a hydrological engineer. My training is that of an electrical engineer with comparatively broad experience in system operation and system planning, principally on the electrical side. My first work on these lines was with the west Kootenay arm of Cominco in 1942 when I was employed in the construction and design of the Brilliant dam. Subsequent to that I spent about six months on hydrological records and studies of the water table and flows of the Kootenay river in connection with storage operations, meeting the International Joint Commission order. After that job I went to the head office in Trail and became, fairly shortly, the electrical engineer for the West Kootenay Power and Light company. I was involved in transmission planning in the post-war period, which was a very busy time. We had got behind owing to shortages during the war and there were some very critical areas, particularly in the Okanagan area, which required transmission reinforcements.

The transmission of power to the Kimberley operations came into the picture in about 1950 or between 1950 and 1952, and many routes and possibilities were studied for that line to supply power to Cominco's mining and fertilizer operations at Kimberley. It included in the planning the Kootenay lake crossing which was at that time the longest power line span in the world. Following that I think the next project was possibly the Whatshan interconnection. Electrically this was a relatively straight forward problem, on the negotiating level however with the B.C. Power Commission. I must say it was an education, perhaps for both sides. However, we achieved a meeting of minds eventually for that interconnection connection and it has now been operating very successfully for eight

years. Then the Waneta plant was built, and I was concerned principally with the transmission planning there.

In 1956, just shortly after the Waneta plant was completed, I left West Kootenay and was appointed chief electrical engineer for Cominco owing to the retirement of the incumbent at that time. Since that time my close relationship to planning on transmission has been somewhat reduced. As I mentioned, I am 25 per cent assigned to West Kootenay to handle transmission and 75 per cent to Cominco's operations which are actually world wide now.

I do feel I have a thorough knowledge of and wide experience in this problem of integrated operation. I have been to board studies with Bonneville and with Washington Water Power on the effects of co-ordinated operation. While I have not been closely associated with water flow records and scheduling reservoirs, I am generally familiar with the subject and certainly have discussed it with Bill Wadeson many times. While I am not a hydrological engineer, I am not exactly completely ignorant of the subject either.

Does that answer your question?

Mr. HERRIDGE: Yes, thank you Mr. Deane.

When Mr. Martin was speaking to the committee he stated that opponents of the treaty are confused and call for varied and different schemes. Would you care to comment on this?

Mr. DEANE: This is a point that has worried me considerably, but in a package of this magnitude it seems to me almost inevitable that there will be differences of opinion. However, one fact stands out in my view very, very prominently, and this is that every opponent of the treaty of whom I know has expressed strong opposition to the High Arrow dam. This is without exception as far as I know. Other features of the opposition may vary, but the opposition to the High Arrow dam seems to me to be completely unanimous. I do not see any confusion here on this particular aspect on the part of the people who oppose the treaty.

Mr. HERRIDGE: Mr. MacNabb of the water resources branch was being questioned by Mr. Fleming on page 235 of the record of the committee's proceedings. I am not going to read questions and answers to any extent, but I will read some:

Mr. MacNabb: Plans have been studied which would not affect to any material extent agricultural; but these would have to be independent plans which just call for the construction of Mica, Downie creek, and Revelstoke canyon.

Mr. Fleming (*Okanagan-Revelstoke*): But not co-operative plans?

Mr. MacNabb: No.

Mr. Fleming (*Okanagan-Revelstoke*): The co-operative plans would not be possible without some portion of British Columbia being flooded where there are agricultural and population centres established?

Mr. MacNabb: That is right. The Arrow lakes project is an essential part of the co-operative plan.

This leaves the impression that the conservation scheme is not a possible solution to the co-operative development of British Columbia. Would you like to comment on Mr. MacNabb's reference to the Arrow lakes project as an essential part of the co-operative plan?

Mr. DEANE: I find this a very surprising statement. To start with, some years ago an offer was made by Puget Sound Utilities for co-operative development of Mica creek, at United States expense, with the storage assigned to their use for 30 years, I believe.

I would have classed this as a co-operative development with no flooding. It certainly did not include the Arrow lakes project. That is water under the bridge now, but I do not see why it could not be considered as a possible plan. In the I.C.R.E.B. report three plans are shown with three alternatives. The three alternatives are without a High Arrow dam. In other words, there are three co-operative plans which do not include the High Arrow dam. Admittedly two of these plans involve substantial flooding in the east Kootenays. But the third one—this is the non-diversion plan with High Arrow eliminated—seems to me to provide in effect co-operative development without significant harm to Canadian land resources.

I am amazed at Mr. MacNabb's answer, and I would very much like to know on what he bases this statement, that this No. 1 plan with the High Arrow deletion alternative, does not provide a co-operative plan which minimizes flooding and eliminates the High Arrow.

As far as this question goes, it says that with the Arrow lakes, the energy which is an essential part of the co-operative plan, there are three plans without High Arrow; but taking the meaning of the question, if we are going to conserve our lands, and taking this as a conservation plan, it is exactly this plan we are talking about except that we do not build Bull river right away, and it does not seem to me to change the meaning of the situation at all.

Mr. HERRIDGE: You told the members of the committee that you were not as acquainted with the district as we are, who having been living there for a long time. Do I understand the effect of High Arrow on the land in the area? Could you give us a graphic description of the proposed flooding around the Arrow lakes, in understandable physical terms, and set out how wide the strip would be if it were continuous around the Arrow lakes. I know it is not. It is wide and narrow, but I think that would give the distance that this would run.

Mr. DEANE: Well, the Arrow lakes reservoir would be 145 miles long. If you take it as a long narrow strip, that would give you 290 miles of shore line and there are bays and branches. I think 300 miles would be the figure you could set. It is not going to be that exactly as a total shore line taking 30,000 acres as the land which is going to be lost. This is more than the 27,000 acres which is listed in many places; however I feel we should add 10 per cent on account of the sloughing owing to the action of the water at these new levels. Geologists and people I have talked to said there would be some land loss owing to sloughing action. So we could round that figure out at 30,000 acres; with 300 miles of shore line. It works out according to my calculation to a strip approximately 800 feet wide completely around the shore of this lake.

We are talking about a lake which would reach from Ottawa beyond Montreal. I would like you to visualize it. I know that we are 2,000 miles away from there, and that many of you may never have been to Arrow lakes. But if that lake were planted here, between here and Montreal, it would extend beyond Montreal, and at various widths, from one half to several miles wide. So taking a strip of that extent over 800 feet wide completely around the edge of it, this could be regarded as a real estate firm's dream, to control that real estate. And while some people may say that a new shore line is formed with beaches, we are absolutely losing this land for productive purposes. Regardless of whether we create a new shore line or not, Canada is losing those 30,000 acres forever. This is perhaps the centre core of my whole presentation, namely this loss of land to Canada forever for an uncertain return.

Mr. HERRIDGE: When you were speaking this morning there was the question of maximum winter energy production rather than firm power. Would you explain the effect of operating Mica for maximum winter production rather than for firm power in relation to this series of flood control purposes? I was not quite clear of the effect of it.

Mr. DEANE: Well, there has been quite a bit of testimony and remarks. If we assign flood control to Mica it seriously reduces the firm energy capability of Mica. I have never seen any actual figures concerning this. It is always left rather hanging in the air. This is the type of thing for a computer, to give it definite terms of reference. However, in a general way if we operate this plant for winter energy production, then the effect of flood control completely disappears. Our whole objective is to capture the spring flood flows and to release them in winter. Undoubtedly there is some conflict, with flood control if you use a plant for firm power and maximum peaking in particular. However, if you are using it for maximum winter energy production, this conflict would completely disappear.

Mr. HERRIDGE: Now, this is interesting to me, because I know so many engineers around the country. Do you know of any engineers resident in Kootenay west who have independently supported this treaty other than in an official capacity relevant to their employment?

Mr. DEANE: Well, frankly, I do not know of any such engineers. There may be some, but they have not publicized in any way their feelings as far as I know.

Mr. HERRIDGE: Do you know of any whose names are not included in your list who have expressed their opposition to this treaty?

Mr. DEANE: Oh, I do.

Mr. HERRIDGE: You do. Now, you made some reference to the international border this morning. Could you tell us, if there were no international border, what type of Columbia development would take place?

Mr. DEANE: Well, I believe it would be this non-diversion plan, or this conservation plan as I have outlined it. I feel that there would be no plan which would flood the area as proposed by the High Arrow, because the Pend d'Oreille river, in many ways, is similar to the Columbia that we are dealing with here; and I know the army engineers did have plans for major storage on Pend d'Oreille lake with a high dam at the boundary site; but this was suppressed partly because of the mining peoples objections, and also largely because of conservationists objections.

The people around Pend d'Oreille lake for instance are extremely proud of their lake. They have around 1,100 miles of shore line, and about the same lake area as the Arrow, with a moderate rise and fall of 11 feet to 15 feet. I admire them for their stand on their lakes. They certainly cherish their lakes. The power people wanted to raise it higher, but the farmers and other people in the area have resisted this, and they have reached a compromise which is satisfactory, with minimal flooding and no real loss of agricultural land.

Mr. HERRIDGE: You have travelled up and down the Arrow lakes a good many times. Would you give the committee your idea of the number of miles of sandy beaches there would be between Revelstoke and Castlegar?

Mr. DEANE: Well, it depends on what you define as sand. It can get to be rather gravelly at times; but taking a fairly liberal view of sand—say up to half an inch—I feel confident there is a good deal more than 50 miles of beaches of this kind.

Mr. HERRIDGE: Have you any idea what is planned in the future for the Whatchan power plant; is it going to be continued in operation or will this be destroyed, considering the very heavy investment by British Columbia Hydro?

Mr. DEANE: I understand it is a difficult problem; it really is economics. It could be maintained by putting a dike around it, but I gather the cost is out of proportion to the power output. It is almost like building a new plant. This is not from any firm information, but it is my own opinion that this plant will be abandoned.

Mr. HERRIDGE: Dr. Keenleyside supplied the committee with a plan which was inserted in the minutes. This plan showed transmission lines and things of that sort. I was interested to know there were no transmission lines going through the east Kootenay area. I am wondering whether there is any relationship between that plan and future developments? Have you any comment to make on the supply of power to the east Kootenay area arising from the proposed treaty project?

Mr. DEANE: East Kootenay fundamentally is a deficient area. They get power actually from Calgary Power through East Kootenay Power; but this is for the utility and general residential and small power needs in that area. Cominco knew this was a deficient area and in 1952 went to a very large expense of something in the order of \$4½ million to build transmission lines from their west Kootenay plants over the mountains and over the lakes to Kimberley. I was very much surprised at this diagram shown on Appendix H, which I believe was submitted by Dr. Keenleyside in his testimony. This shows massive power lines through Prince George, Kamloops, Vernon, Trail, and all over Vancouver island. East Kootenay seems to be right out of it. Perhaps they are going to leave it up to Cominco entirely. However, that diagram does seem to leave that area out in the cold in a strange way. Certainly there are no hydro sites in the East Kootenay of any consequence to Canada under the present treaty plan.

Mr. RYAN: Mr. Deane, from your informed comments this morning concerning the east Kootenay diversion, I would take it that you probably had to read the treaty over several times, like the rest of us, but you did get the meaning fairly clearly; you were able to interpret it fairly readily as a result of reading it.

Mr. DEANE: Do you mean things like the 1½ million acre feet in 20 years and more in the future?

Mr. RYAN: Yes; Canal Flats and the Bull river-Dorr diversion.

Mr. DEANE: Yes.

Mr. RYAN: You seem to have that fairly straight in your mind, which has not been the case in respect of quite a few others.

Mr. DEANE: What is your question?

Mr. RYAN: Was there any place in the treaty where you had difficulty getting at the meaning in a similar way?

Mr. DEANE: I am inclined to look at the treaty perhaps too straightforwardly. I am not looking for bugs in it. I regard the treaty as being in good faith, and I wish this was written on the front page in some legal way.

Mr. RYAN: As you look at it, you certainly can get the meaning from the treaty?

Mr. DEANE: Yes.

Mr. RYAN: Do you feel that this treaty in effect put burdens on us; first of all, the sale of control of the water subject to limitations such as the east Kootenay diversion and diversions for consumptive uses, for power, and another burden, the lease of storage for 60 years from ratification?

Mr. DEANE: Well, to answer the question, as I stated, with the High Arrow eliminated, the present treaty is acceptable so far as I am concerned.

Mr. RYAN: That is not my point. I know that is the point you are trying very hard to make. I think probably you have done very well, but it still may not be acceptable to everybody. However, you made a very good point. What I am trying to get at is, do you think this treaty, instead of being a sale forever of our water, amounts only to the controlled sale of water, subject

to limitations, for power both in the United States and Canada, and in addition lease of storage in these reservoirs for a 60 year period from ratification.

Mr. DEANE: Yes. I do not take the view we are alienating our water forever in this case.

Mr. RYAN: That is what I am getting at. In the treaty, the protocol and the sale agreement, do you see that these dams will be paid for in 30 years and owned solely by Canada without encumbrance, except that we would be performing an agreed service for another 30 year period? Would you take that from your reading of the treaty?

Mr. DEANE: I hope it will be paid for. I am not privy to the estimates in respect of these matters. On the face value of the figures given, they appear to have a fair margin. Frankly, money I think is the least important factor in the long view in this sort of a treaty, even in my lifetime.

Mr. RYAN: That is getting into another field.

Mr. DEANE: You asked me if they would be paid for.

Mr. RYAN: If the government's presentation is correct, I would take it there is every reason to expect these reservoirs would be completely paid for in 30 years.

Mr. DEANE: That is fair—well, paid for except what you lose at the Arrow if it is not put in at the right price.

Mr. RYAN: How much?

Mr. DEANE: Do you mean what you are losing in the Arrow valley, and what price I would put on it?

Mr. RYAN: This is a price of an intangible.

Mr. DEANE: It sure is.

Mr. RYAN: You are safe, then, in saying you cannot give us a price on it.

Mr. DEANE: No. I cannot give you a price on that value, and I don't think anybody else in this room can, in dollars.

Mr. RYAN: At the end of 60 years, is it your opinion, after reading the treaty, that we can divert out of any one of the three reservoirs, Mica, Arrow or Duncan, all the water we want if we desire to do so?

Mr. DEANE: For power or consumption?

Mr. RYAN: For any purpose; diversion inside the Columbia basin, or outside, anywhere else in Canada?

Mr. DAVIS: After 60 years?

Mr. RYAN: Yes.

Mr. DAVIS: Why after 60 years?

Mr. DEANE: I have not envisaged ever diverting water for power in these rivers under the present treaty scheme. I do not see any need for it. Therefore, I really have not looked into our rights.

Mr. RYAN: You have not looked at the treaty having that in mind—diversion after 60 years?

Mr. KINDT: I have a supplementary question. It is stated in the treaty, and also in the protocol, that in so far as flood control is concerned—storage in Canada in relation to flood control—that that stands forever, and if you accept that principle forever, you have accepted the principle of control of water in Canada forever. So, there is no way of discussing it.

The CHAIRMAN: Is this a question?

Mr. KINDT: Do you agree with that?

Mr. RYAN: I think what I am coming to will help.

Mr. KINDT: I have asked a supplementary question.

Mr. DEANE: I do not see that diversion conflicts with flood control.

Mr. BYRNE: That is for sure.

Mr. RYAN: Well, that is my point and he has pretty well answered it. If diversions after 60 years, even within the Columbia basin, were made it is conceivable these diversions would cut off all demand from the United States for flood control because if we have taken the water out of the reservoirs for our own use, then they have been emptied sufficiently to give the necessary flood control.

Mr. DEANE: There would be a conflict there. We have committed to them space in these reservoirs at certain times of the year and I do not know whether or not this would suit a diversion scheme. However, we have to have that space available at certain times of the year.

Mr. RYAN: However, in all likelihood these diversions could be extremely helpful in cutting down on flood control provisions forever.

Mr. DEANE: I do not think so, and that is an opinion rather than a studied view of the matter.

Mr. RYAN: Would you agree in part it could be an alternative way of emptying the reservoir and giving flood protection?

Mr. DEANE: Only to a slight degree. But, I see no conflict in respect of this flood control. I do not think flood control is a bind on Canada but fits the pattern of maximum winter energy production.

Mr. RYAN: Suppose we cut back on the flow of the main stem of the Columbia at the border. This might give rise to a claim for damage downstream in the United States after the 60 year period, if they suffer, which they would by such a course of action; however, that would not interfere under the treaty with our theoretical right to do so.

Mr. DEANE: I understand that is correct. However, if we want to pay the compensation we can divert the water.

Mr. RYAN: We have heard this treaty described as a sell out and a loss of sovereignty in respect of water forever, and there have been some other rather inflammatory remarks made about it. Would you agree with this?

Mr. DEANE: With one part, the Arrow valley.

Mr. RYAN: So, you are mainly concerned, and I think properly, with the flooding of the good land in the Arrow valley.

Mr. DEANE: Any land. I do not like to hear land referred to as good and bad. To me the whole Arrow valley with that elevation has a tremendous future value; it has the only, 1,400 foot elevation in the whole east and west Kootenay.

Mr. RYAN: But, if you do not put in the High Arrow you cannot regulate half the flood waters that come into the Columbia below Mica Creek; is that not correct?

Mr. DEAN: You have a 3 million acre foot reservoir to regulate it and, downstream, the Americans have a 5 million acre foot reservoir on line.

Mr. RYAN: Would that not mean spilling a lot of water over Murphy, if you put up Murphy as an alternative to High Arrow?

Mr. DEANE: Only in very high flow years. It also depends on how many generators you put in at Murphy.

You must remember that we have less storage in Kootenay lake in comparison with Mica and we are not crying over the spillage. Take a look at the Kootenay storage; there is .7 million acre feet in the lake and 1.4 million acre feet in Duncan, a total of 2.1 million acre feet, which is all we have to

re-regulate below Libby, and there is a terrific inflow below Libby. If it works there why not on the Arrow?

Mr. RYAN: Are you actually a resident of this area and do you own property near there?

Mr. DEANE: I own property on Kootenay lake and I live in Rossland.

Mr. RYAN: Are you at all interested in any property in the Arrow lakes valley?

Mr. DEANE: No, I have no property in the Arrow lakes district.

Mr. RYAN: In respect of these engineers who signed your letter as endorsers, do they belong to a club of engineers in the area?

Mr. DEANE: No sir. They are all from the Trail, Rossland, Castlegar and Nelson areas.

Mr. RYAN: And are they all known to you or are they personal friends?

Mr. DEANE: Yes, but I should say I took copies of my brief and circulated them. I did not have much time to get this done. However, I sent a signature sheet along with these copies. I did not interview all these engineers; I asked friends of mine to pass them around and to make sure those who were interested read it, and if they wished to endorse it to do so. There was no pressure used. Frankly, I was more than surprised at the response. I might say that out of 26 I know who were approached, 24 endorsed it.

Mr. HERRIDGE: I have a supplementary question, Mr. Chairman.

Mr. Deane, would I be correct in saying that all these engineers are well known in Kootenay west?

Mr. DEANE: They certainly have all been there for some years and practically all of them are well known in Kootenay west.

Mr. RYAN: You are familiar no doubt with the tender made by the General Electric Company in connection with the Oyster creek, New Jersey, power station, and the fact they made a very low tender. I think the fixed price capital cost works out under \$105 per kilowatt.

Mr. DEANE: What station was that?

Mr. RYAN: The Oyster creek nuclear power plant proposition in New Jersey in the United States. Last week there was an announcement—and I am subject to correction—which came out in the *Christian Science Monitor*, dated April 27, 1964, announcing a breakthrough in the manufacture of nuclear power owing to improvement in the boiling water reactor of the General Electric Company, as a result of which they made this low tender. In view of this fact and the fact it would be necessary in order to make any changes in the treaty to accommodate your plan to go through the American Senate again because the dam site would have to be changed, do you not fear we would lose this rather excellent bargaining position?

Mr. DEANE: My experience has been that when we have gone back before with far tougher demands we have been successful and, at this time, to eliminate the Arrow lakes dam appears to me beneficial to the United States, and I cannot see any reason why we should not come to a very rapid agreement.

All the nuclear power plants in the world will not give them flood control.

Mr. RYAN: I gather from what General McNaughton had to say that firm power should be one of our main objectives in this matter and that anything less amounts to loss of sovereignty and control of the river. His plan gives somewhat more firm power. This is one of his reasons we should adopt his plan and should not ratify this treaty. Would you agree with that?

Mr. DEANE: More basically, the way I add it up, the advantage in power from the McNaughton plan is 400,000 kilowatts of average generation, and I do not think that the flooding of the east Kootenay comes anywhere near justifying this power.

Now, if you want a new lake in the east Kootenay for other reasons than power, then the power is fine, but to me, in looking 50, 60 or 100 years ahead the significance of hydro power is going to start decreasing relative to the total resources. This is inevitable. But, the significance of these other resources obviously is going to increase by leaps and bounds, with increases in population and so forth, with no alternatives in respect of lakes, beaches, residential areas and so forth.

Mr. RYAN: But, your plan means we will have to be ready to accept more fluctuating power than firm power. By accepting a fluctuating power situation, particularly at Mica, do you feel we will lose any sovereignty or loss of control of the river?

Mr. DEANE: I do not think we lose to any significant degree in this regard. I believe we have our own resources such as the Peace river and Kemano, which I do not think any of the consultants have considered in their co-ordinating studies. The transmission on this appendix H shows a very heavy line from Prince George to Kemano. I believe we can look after this in our own province.

Mr. Davis mentioned the possibility of a trans-Canada grid. This would create another factor to work with, I do not feel there is any reason in the world why we cannot co-operate with the United States in regard to their electrical system. If we co-operate electrically with the United States we will have in effect firm power for our loads. This is what we are doing with the Cominco system. I cannot see any reason why we should be afraid of that situation.

As I said earlier, I think it is only going to be a relatively few numbers of years until our own system can handle the whole thing, so we are not putting ourselves in any permanent subservience to the United States in this regard.

Mr. RYAN: Mr. Deane, in looking through your brief and particularly at your charts I see that figure 7 sets out the draft treaty plan, January, 1961, and gives the ultimate Canadian generation of 2,285,800 kilowatts plus extra at Mica owing to 25 feet more head. In looking at figure 9, which is your conservation plan, I find that the ultimate Canadian generation is 2,285,800 kilowatts average plus extra at Mica owing to 25 feet more head. The only difference in kilowatt hours seems to be associated with the word "average".

Mr. DEANE: I should state that the word should be applied to both plans. There is no difference in the Canadian generation between the two. They are both average and both have been taken from the I.C.R.E.B. report.

Mr. RYAN: If the Mica production is going to be fluctuating up and down in respect of flood control purposes, and more so by reason of the conservation plan, surely there would be less average power generated there, would there not?

Mr. DEANE: The figures in the I.C.R.E.B. report are based on the figures related to an integrated operation with the United States. Actually in respect of both these plans either the Mica project or the Arrow project was to be operated for flood control.

Mr. RYAN: Perhaps I am under a misconception in respect of this word average. Does average mean firm power, or just what does it mean?

Mr. DEANE: It means the total annual energy; kilowatt hours per year.

Mr. RYAN: Then it does not relate to firm power?

Mr. DEANE: It could relate to firm power. This does not say what the firm power is, but it might or might not be firm power.

Mr. RYAN: Under your conservation plan what would be the drawdown at the Murphy creek reservoir?

Mr. DEANE: I think it is approximately 32 feet.

Mr. RYAN: Mr. Herridge in a speech he made in the house within the last day or two, and it might have been yesterday, stated there was some pollution of the Columbia below Castlegar. Would the Murphy dam have the effect of storing up this pollution?

Mr. DEANE: Would it have the effect of storing the pollution; is that your question?

Mr. RYAN: Yes, would it store the pollution as well as the water?

Mr. DEANE: Frankly I cannot answer that question. I do not know. I doubt whether it would be a significant factor.

Mr. HERRIDGE: Mr. Chairman, what I referred to was complaints from the residents of the Castlegar and Kinnaird area in respect of pollution of the Columbia which would occur as a result of the construction of the High Arrow dam.

Mr. DEANE: I am sorry, were you referring to construction pollution?

Mr. HERRIDGE: That is certainly what I had reference to in my statement, and I should like you to comment in that regard at this time.

Mr. DEANE: I believe pollution owing to the construction of the Murphy project would be somewhat less than that in respect of the High Arrow project, I think it would be significant during the period of construction, but it would not effect the Celgar pulp mill, or the Castlegar-Kinnaird area. It would effect only the Trail area, and remedial measures would be very much less costly. It would cost approximately \$1 million or more to look after the Celgar water requirements, and would require a long pipeline upstream from the construction area.

The CHAIRMAN: Have you concluded your questions Mr. Ryan?

Mr. RYAN: Yes.

Mr. KINDT: Mr. Chairman, I should like to ask a supplementary question. In view of the rapid progress being made in respect of water pollution, do you think this possible pollution could be controlled?

Mr. DEANE: I do not think the progress to which you have referred applies to the situation Mr. Herridge has in mind.

Mr. HERRIDGE: The local people are very concerned about this situation. They have written and asked me to raise this question. I have received letters from Castlegar and Kinnaird. Both of those communities are dependent upon the Columbia river to a great extent for domestic water.

Mr. DEANE: I understand that these communities have been assured by the British Columbia hydro company that their problem will be looked after. That is all I can say in this regard. Were you speaking of permanent pollution? That really is a separate problem which is under very active consideration at this time. Certain suggestions have been made that some of the flood control money should be given to these communities for the development of sewage disposal plants. I am afraid I can make no useful statement in this regard.

Mr. LEOE: Mr. Deane, I was interested in your remarks concerning the Peace river development in reference to the Mica creek dam. In view of the fact that the figures, whether right or not, and I cannot substantiate them, indicate that one third of the power developed on the Peace river has already been

committed, and in view of the possibility that tremendous amounts of power will be required by the iron ore mining industry in the northern part of Alberta adjacent to the Peace river, considered along with the knowledge that there is a standby agreement worked out in respect of Kitimat and Kemano, is the High Arrow and Peace river development of significance, or will most of the energy developed be committed?

Mr. DEANE: All I can suggest is that the obvious answer is heavy integration with the United States plants which are the natural ones in this regard. If you integrate with the United States plants there will be a balancing situation developed. The United States asks for the release of water because they want to generate more power downstream at Grand Coulee and the other plants all the way through to the ocean. If you can give them power as well as water on an equichange agreement they will not need as much water. As soon as you give them kilowatts they will back off and ask for less water. This will smooth out the situation enormously. You will need only half as much on an equichange arrangement with the United States plants as you do with Kemano, Kitimat and Burrard.

Mr. LEBOE: The reason I asked that question was that you mentioned this in an earlier part of your brief as a supporting argument.

A number of pictures were shown to this committee, and as far as I was able to ascertain from the pictures, the beaches really were only sand bars with very rapid drop offs. There were no long beaches running out 400 or 500 feet into the lake. From my observation of those pictures the beaches in reality were only sandbars which dropped off rapidly from the bank. Could you give us any information in this regard?

Mr. DEANE: Well, this is a tremendous lake of 145 miles in length. I would say that you could find every type of beach and bar in existence from Deer Park to Arrow Head, including drop off beaches.

Around the Needles area there are sandbars certainly and that is an area where a lot of dredging is planned. In this Murphy creek project \$7 million is assigned to dredging in the Burton area and also down I believe at Tin Cup.

Mr. LEBOE: Would you have any idea how many beaches there are in comparison with sandbars?

Mr. DEANE: I really do not know.

Mr. LEBOE: I have one other question on this point. Have you any idea what the water temperature is from the point of view of swimming and recreation? Is there very much of that going on in the lake? From my experience, and I have lived in the central part of British Columbia for some 45 years, it would seem to me that with the wooded areas and the secluded streams you would get a lot of ice water from the mountains during the summer. That would make the lake pretty cool. What is the average temperature of the lake in the summer?

Mr. DEANE: It is certainly cold. You have Christina lake which is warm, Kootenay lake which is moderate and the Arrow lakes which are very cold. My feeling is that when Mica creek is built there would certainly be a substantial change in the temperature at Arrow lake because you will have cut off an enormous amount of snow water which would be intercepted by Mica creek and you would still have the same input to the surface from the sun. I therefore think this would tend to raise the temperature. In addition, if you are storing water in the summer, particularly in August, you will be holding the level up and thus cutting down the currents. This would tend to leave a warm layer of water on top of the lake, which would make a big difference to the temperature. This would apply whether you have Murphy or High Arrow.

Mr. LEBOE: Having lived in that country for many years, I cannot say I agree with your observation, but we will let it go at that.

Quite a lot of reference has been made here to the expropriation of land. I am a little bit unsympathetic in regard to this for the simple reason that throughout Canada many expropriations have taken place and people have had to move because of the building of highways, airports and other urban developments throughout the country which force the displacement of people. We had a similar situation with the Kenny dam on Nechako where farmers were all displaced and as a result we now have a tremendous community up at Kitimat which, in my opinion, is far more advantageous. The people there are living in the finest of homes under the finest conditions, as you perhaps know. Do you really think that we could isolate this one little valley? I come from a country of many, many valleys and I have been in most of them. I can say there is room for a lot of people to live there. Do you not think you are overemphasizing this as a result of having lived there for many years and thus having developed an emotional attachment?

Mr. DEANE: This is bound to be a subjective type of discussion. I was up in your country last fall going through the Peace river and I was extremely impressed with the relatively large, flat areas around Prince George. There is an enormous inland plain there. I was also told of the rather horrible temperatures in the winter in comparison with the Kootenays.

Mr. LEBOE: I can say there is not much difference.

Mr. DEANE: I disagree with you there. I do not think you will find peaches around Prince George.

Mr. LEBOE: You are talking about the winters.

Mr. DEANE: To get back to your main point, I have certainly tried to be objective. I feel we are not getting anything out of it. If we were building High Arrow alone and not building Mica—if we were getting two million horsepower such as we do at Kitimat—the balance, it seems to me, would begin to get somewhere in the ball park. However, expediency is not a good enough reason to flood that valley, and I will stick to that opinion.

Mr. LEBOE: You said that Canada should have a veto in this particular case. I do not want to put words in your mouth but to get the information across to the committee through you. Would you not say it is true that the national aspect is going to defeat your argument even more because of the extended broadness of the picture as opposed to the provincial interests? It seems to me the provincial authorities would have a more sympathetic approach to a little valley of British Columbia, if you want to call it that.

Mr. DEANE: My thinking on this is that our provincial government is a real live wire, hustling outfit out for development at any cost.

Mr. LEBOE: This is your opinion?

Mr. DEANE: It is not exactly an opinion; I think they have proved it and I am all for it. However, I think some senior body is needed.

Mr. LEBOE: To tame them down.

Mr. DEANE: To hold check reins at times. They are real fire eaters and they are doing a marvellous job but once in a while someone has to blow the whistle on them.

Mr. LEBOE: The other people in Canada are hoping it will spread eastward.

Mr. DEANE: There is still the need to blow a whistle.

Mr. TURNER: You came to Ottawa because this is where the responsible government is.

Mr. DEANE: I am talking now basically about the justice of turning these people out for no significant gain to Canada.

Mr. LEBOE: I think we can come to that later.

I should like to come back to the Peace river situation on the basis of this relativity to the cash for power downstream benefits. A moment ago you spoke of the interchange between the United States and Canada. Would this cash for power position not put your argument on the shelf?

Mr. DEANE: No, we are dealing with different power completely. This equichange applies only to power generated in Canada, not to downstream benefit power; that is all looked after by the United States. It is like our Waneta plant. We have no downstream benefit power involved there. The Kootenay lake produces some downstream benefits but we are not dealing with power there so that it does not affect my position. In other words, this equichange of power has no bearing at all on this sale of downstream benefit power as laid out in the treaty.

Mr. LEBOE: Since you mentioned the plants down the river I thought that this is the power to which you were referring. That is why I asked the question, because you were saying that what the United States wanted were downstream benefits for power output of the dam as well as flood control, to which of course we agree. I thought this was why you tied it in.

Mr. DEANE: Perhaps I did not make it clear. When they want water releases to generate power downstream, downstream benefit power is generated in their own plants.

Mr. LEBOE: And it draws off water from the Mica dam.

Mr. DEANE: If we have generators in Mica creek they generate a lot of power while this water is being released, so in effect we have too much power and we put it in the bank down there and ask them to hold it for us for a while. This reduces their requirement for water.

Mr. LEBOE: This is the reason we have High Arrow as supplementary storage.

Mr. DEANE: Not really. None of the other streams have it and they seem to get along fine.

Mr. LEBOE: Are you aware of any plans being made by the British Columbia government either directly or through hydro for the rehabilitation of the High Arrow valley after the flooding takes place? Have you made any inquiries into what is being planned to rehabilitate the area?

Mr. DEANE: Most of the people with whom I have been in contact have not been in touch with British Columbia Hydro. Some of them have heard nothing but the impression was that they were going to be asked to take cash, pack up their bags and go somewhere else, that is their problem.

Mr. LEBOE: There have been statements made to the effect that a great deal of money will be spent in the rehabilitation of the valley and that it will be much more attractive when it is finished than it is now. There is concern about the water temperature; I do not think too many people like to swim in really cold water. Therefore, the type of development that would be carried out in the area would be the type of draw-up that could be made there, even though the banks are steep, for places for landing boats, for fishing and camping facilities, and this kind of thing.

Mr. DEANE: A lot of this could be done, but there does not seem to have been anything very definite put on paper.

Mr. LEBOE: Yes, there was something quite definite on this. Also there is the fact the provincial government did set up one ministry with a minister who had nothing to do but look after this type of thing in British Columbia.

Mr. Kierran is the new minister of recreation and conservation. He has no other portfolio. This has to do with the Peace river as well as High Arrow, Mica and all these different places.

There is one other question I would like to ask, and this will be my last question, Mr. Chairman. I was interested in the list of engineers. You said you canvassed these engineers for signatures.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No, he did not.

Mr. DEANE: I said I passed out my brief for them to read.

Mr. LEBOE: I think you will see from the record that the word "canvassed" was used.

Mr. DEANE: How you interpret "canvassed" I do not know.

Mr. LEBOE: As I understand it and as I believe you to have interpreted the word—I am not going to interpret it—you were out seeking signatures for endorsement.

Mr. DEANE: How would you suggest I should go about it? I was very careful to avoid any pressure at all.

Mr. LEBOE: I am not suggesting there was pressure. I am leaving it to you to explain just exactly what was the situation. I have another question following on this and I would therefore like to have an answer to this question.

Mr. DEANE: I had given various talks to organizations over the last two years on this subject and many people had asked me if I was going to appear before the external affairs committee. I said that I really did not know whether they would want to hear me. I did not know what organization I should represent or whether I should go just as a straight individual. After thinking it over for quite a long while I came to the conclusion that the best thing for me to do would be to write a brief, circulate it among engineers in the district, and see what the response would be. If I had found only one or two who were interested, then you would not have seen me here today.

Mr. LEBOE: The other question I want to ask is in connection with this and I think it is very, very important. How many of those engineers were actually aware of the details of the treaty and protocol to an extent that they could judge your brief in comparison with the treaty and protocol?

Mr. DEANE: I do not know whether there is anyone in the world today who knows every detail of this document.

Mr. LEBOE: I am not talking about every detail; I am talking about a study of it so the attachment of their names to the brief could carry some weight. Personally, I do not attach any weight to them; this is my point. I may be wrong, but I do not attach any weight to that list of names because they have compared the brief with nothing unless they have compared it with the treaty and protocol.

Mr. DEANE: They knew much more about it than the 4,500 names at ten cents a card.

Mr. LEBOE: We have disallowed that.

Mr. DEANE: They have been quoted many times.

Mr. LEBOE: We did not allow them to be listed.

Mr. GELBER: We did not ignore them; they are before the committee.

Mr. LEBOE: We did not ask anything of them; they endorsed the treaty as it was, and I never gave any credence to the names because my experience has been—and, I am sure, the experience of every member of the committee—that you can pile up a bunch of cards and papers and have people sign them when they do not know what they are signing, and away they go. This type of

thing is like the 40,000 names brought in here the other day. The same thing applies, I think, Mr. Chairman.

I was interested in knowing whether these people who had endorsed this brief had the opportunity to study the treaty and protocol to an extent sufficient for them to make a comparison.

Mr. DEANE: Let me say that they had read articles in technical magazines and newspapers which were circulated far more than this brief. Some of them asked for this and that. However, I would like to say that these people are all registered professional engineers, and I do not think they would put their names to something they felt they knew insufficient about to enable them to express an opinion that could be counted upon. You say they should be ignored—

Mr. LEBOE: No, I do not mean that. If that is what you took from my remarks, you were mistaken. I said that I was not attaching any weight to the material to which they attached their names. I have this feeling particularly because of the emphasis you have put on the intangible values, which do not come within engineering at all.

Mr. DEANE: The engineering angle is mostly a matter of responsibility to the community. Engineers are always told they should take more interest in the community and not be just engineers. Then, as soon as they are taking more interest, you say they are stepping out of their field.

Mr. LEBOE: No, I did not say that.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That was the implication.

Mr. LEBOE: One does not require an engineering degree to understand the intangibles. I do not have to have an engineering degree to understand land, people, justice, nationhood, or water, beaches and recreation.

Mr. KINDT: May I ask a supplementary question, Mr. Chairman?

Did you take a poll among these 1,800 people who would be drowned out on the Arrow? How many of the people who would be flooded out would be likely to vote in favour of the treaty?

The CHAIRMAN: Surely this is not a question—

Mr. KINDT: It is an intangible benefit. We are talking about intangible benefits.

Mr. MACDONALD: Very intangible!

Mr. KINDT: You would not find one of them who would vote for it.

Mr. BYRNE: Just on that point, may I say that I have gone over the list of the names sent in by wire and I have found that 60 per cent of the number of people who were on the voters' list in the Arrow Park district signed the petition asking to proceed with the treaty.

Mr. HERRIDGE: I rise on a point of privilege, Mr. Chairman. On Wednesday I moved a motion for the production of papers which would include the petition sponsored by the Nelson Chamber of Commerce, from January 1 to the date of the passing of the motion. I have just been to the sessional papers office and I find it is not there and it has not yet been tabled in the house. I have discovered that an official of the Department of External Affairs has handed this petition to Mr. Byrne before it has been tabled in the house and before a copy has been made available to the member who moved the motion. This is most irregular, Mr. Chairman.

Mr. Byrne mentioned that he had checked this, and he had it in his hand a few moments ago. I have been to the sessional papers office and I have found that it has not yet been tabled. A copy should come to the mover of the motion. Mr. Byrne is using a document that has not been tabled in the house as a result of a motion.

The CHAIRMAN: This is something that should perhaps be brought to the attention of the Speaker of the House of Commons.

Mr. HERRIDGE: Quite right.

The CHAIRMAN: I would ask immediately that anything that has been examined by Mr. Byrne be circularized now before we lose our witness, because I am sure we will be meeting tonight.

Mr. HERRIDGE: I refuse to accept the document until it has been tabled officially by the minister. That is the proper way in which to do this in the house.

Mr. BYRNE: I checked the list some time ago. I went to the Prime Minister's office and asked to see the list. I knew it was there. It was more than a month examined by Mr. Byrne be circularized now before we lose our witness, because people registered on the voters' list in Arrow Park had signed. Mr. Herridge subsequently asked for it to be tabled. I know nothing about whether or not it has been tabled.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You have been making very strict rules, Mr. Chairman.

The CHAIRMAN: Yes, and I think it is quite right. We used the word "bootleg" in evidence. I used the expression and somebody objected to it. That seems to me to be a kind of thing which we must at all costs avoid. Perhaps if I had been a better Chairman I would have checked this before now because this is what we are resolving collectively not to do.

Mr. PUGH: Why was this document given to the Prime Minister's office and not to the Chairman of this committee?

The CHAIRMAN: I presume it was sent to the Prime Minister's office. I do not have any knowledge of it, and the secretary tells me that she has no knowledge of it.

Mr. DINSDALE: Mr. Herridge indicates that he wants to deal with this matter in the house. I think this would save some time.

The CHAIRMAN: Yes, quite so.

Mr. HERRIDGE: I repeat that this seems to be an irregular procedure about the production of papers which have not been tabled in the house.

The CHAIRMAN: It may be that the Prime Minister is having difficulty, if Mr. Byrne has bootlegged it out of his office.

Mr. PUGH: Should the word not be "highjacked"?

The CHAIRMAN: Yes, thank you. I feel we are trying to work as co-operatively as we can.

Mr. BYRNE: I apologize for using the word "bootleg". Dr. Kindt and I have been at each other so much.

The CHAIRMAN: Would it not make sense if you examined whatever the document is?

Mr. HERRIDGE: I believe in obeying the rules of the house and I refuse to see the document until it has been tabled legally.

The CHAIRMAN: I have Mr. Cameron, Mr. Dinsdale, and Mr. Byrne.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Once in your presentation you made reference to a possible construction of a dam in the east Kootenay, and your figure seven, the plan you have drawn, shows in tentative style the Bull river-Luxor project. I would like to know from you what effect the construction of these dams would have, if they were undertaken when Canada regained her legal right to do so, on the operation of the Libby dam?

Mr. DEANE: Well, if we used our maximum diversion rights in 80 years and 100 years, it would substantially reduce the firm energy and average kilo-

watts from the Libby dam, but it would still leave the full peaking capacity at the Libby dam for a short period, and it would not make Libby dam useless by any means. However, it would reduce firm energy from the Libby dam.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): By what proportion?

Mr. DEANE: By a substantial proportion. I would think the maximum diversion would be in the order of 50 per cent.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): In your many years of experience as an electrical engineer with Cominco, I imagine you must have had quite a lot of experience with the effects of power production units in areas in building up business, and in vested interests in that power production. Even though the bulk of your power is used for Cominco operations, there must have been a great many subsidiary ones as well?

Mr. DEANE: There are mines, sawmills, and packing houses. We have never restricted power supply to our utility customers as we call them. If there is a shortage of water in a critical water year, Cominco takes the rap in the interest of good relations. But even aside from this, it is the only practical way to handle it.

Mr. CAMERON (*Nanaimo-Cowichan-The Island*): If Cominco or Cominco power production plants were in that position, with the power production plant which will develop as a result of the construction of Libby, and you were faced with the reduction of your power potential by 50 per cent, that would have a very serious effect on these various operations, would it not?

Mr. DEANE: Well, the reduction would not be nearly 50 per cent; it would be only 50 per cent at the most.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): But if you were in the position physically and so on of Libby so that it would be possible to reduce it by 50 per cent, it would have a very serious effect on the vested interests in that area, would it not, and not only on Cominco's operations?

Mr. DEANE: To tell you the truth, I doubt it. If you knew that this was coming, you would have other sources available. Plants would revert to more of a peaking style of operation, and power would flow in from other sources, provided that you had reasonable warning that this was going to come about. Perhaps this power would come from up around the north, where arrangements could be made to make some of that power available. I mean that the system would get it from extra generation up at Mica, if there were that possibility.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You refer once or twice to the operations of Mica. What in your opinion is required for a maximum or optimum use of Mica as a power production installation? Would the present Mica reservoir be sufficient, or would it require further reservoirs upstream?

Mr. DEANE: I believe the reservoir is quite adequate, particularly with this additional 25 feet. Actually, since the I.C.R.E.B. report came out it has been raised 40 feet, which adds a very large block of storage, and gives you more water per foot of drawdown. That is, the area of the reservoir is considerably larger. So, if it is integrated particularly by the United States system, I do not see that you would need storage above Mica to any great extent.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): On page 8 of your brief you list what you call "advantages of Libby to Canada and disadvantages of Libby to Canada". I was not able to come across any evaluation that you put on these advantages and disadvantages. What assessment would you say was relevant? Could you do that for us?

Mr. DEANE: I have stated why I did not do this. It is a very complicated subject and I did not feel that my opinion would really be significant. I do not know the east Kootenays nearly as well as I know the west Kootenays,

and since the flooding of land is concerned here—I am talking now about Libby—is that what you mean?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No, what I meant was that you have these two categories here on page 8, the advantages to Canada and the disadvantages to Canada of the Libby dam project. I wondered whether you would put in a sort of assessment of it that had some bearing on your attitude towards possible development in the east Kootenays.

Mr. DEANE: I was rather sorry afterwards that I did not just list them as effects of Libby and not describe them as advantages or disadvantages.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): But you did.

Mr. DEANE: I did, but who is perfect?

The CHAIRMAN: You throw the first stone, Mr. Cameron.

Mr. DEANE: Flood control for the Creston diked areas is to me an obvious advantage. Power benefits on the west Kootenay section of the river are matters of obvious benefit. Low cost to Canada of only \$12,000,000 is something that I cannot really comment upon intelligently. This could be regarded as a disadvantage to Canada or as an advantage, depending on the various factors involved.

As disadvantages to Canada, loss of the Dorr power and storage site. That to me is not a very serious loss. Frankly, I am extremely sceptical about dams built at the 49th parallel.

That is a completely artificial boundary that has caused British Columbia fantastic headaches in respect of road construction, power development, and everything else. This Dorr dam site is in an artificial spot, in my opinion, and is not an outstanding natural site. It is as close to the 49th parallel as you could build a dam in Canada; it is artificial. Therefore, I do not regard the loss of the Dorr site as too serious.

I do not know the east Kootenay area, but I have heard it is rather infertile. However, since I do not know it I cannot comment on it. Restriction on the diversion of the Kootenay certainly would reduce Canada's flexibility in the future with regard to what we might want to do; that is a disadvantage. Whether you would call it a tangible or an intangible, I do not know; it depends on how it pans out. It might be no disadvantage at all. You might decide you do not want to flood that area, and then you have not sacrificed anything. Does that answer the question?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): As much, I imagine, as you can. I can see the spot you are in. With regard to the subject of flood control in the Creston dyked area, I gather you considered that an extremely important advantage to Canada of the Libby dam. Is there any alternative by which it could be achieved except by the Libby dam project?

Mr. DEANE: Well, I understand that the Dorr-Bull river sequence would give adequate protection. I do not think it is quite as good as Libby, but I think it is adequate.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That is a good answer to this problem of the flood control?

Mr. DEANE: Essentially, yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): The effect of the Libby dam on operations in Canada downstream would be quite important, I imagine. Could you give us some information on that?

Mr. DEANE: Well, this is the main point in the brief of Consolidated as expressed by the witnesses you have heard; that is, the controlled flow from Libby gives Cominco an opportunity to develop an additional 210,000 kilowatts

at a relatively economic plant on the Kootenay river between Nelson and Castlegar, and to me this is of substantial advantage to Canada.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This is quite important to Cominco.

Mr. DEANE: Well, I think they could get power elsewhere if they had to.

Mr. HERRIDGE: Do you not think they could get it from Murphy creek we built Murphy?

Mr. DEANE: They could come fairly close. Murphy creek has a very good energy output rated somewhere around that level, and maybe more. You probably would have to have an interchange agreement with the United States to get power in usable form out of Murphy creek, but that is not too impossible. I think that should be done. We use these policies in developing our hydro in a nondestructive manner; this really is the gist of my approach.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Thank you.

Mr. DINSDALE: Mr. Chairman, earlier today Mr. Deane made the statement that the negotiation problem is artificial. Would Mr. Deane care to enlarge on what he means by that statement?

Mr. DEANE: Perhaps it is not too good a choice of words. It is not a physical problem involving huge dam sites, river flows, and things that you cannot change; it is a human problem, shall we say.

Mr. DINSDALE: I presume Mr. Deane would agree that this is the most complex intergovernmental scheme that ever has been negotiated, and if that is so, would you not agree that negotiation is of the utmost importance?

Mr. DEANE: I would not use the word "utmost" in the sense that it is the top thing; it is very important.

Mr. DINSDALE: If the government of Canada had absolute control over the resource, or if the government of British Columbia, or the United States government had absolute control, there would be no problem at least from the standpoint of engineering science in determining what would be in the best interests of each of the respective governments; but once you come together to negotiate jurisdictional differences, do you not run into difficulty?

Mr. DEANE: So far as I can see, they have been solved. At the stage at which we are now of renegotiation as I see it, or amendment, which is what I would have liked, I do not see the conflicts. It seems that our interests and those of the United States are the same. If we reduce our storage and reduce the lump sum payment, the United States is relieved of raising so much money and we do not have to spend so much money. If the United States has High Mountain Sheep and Bruce's Eddy, they get higher up on this curve of benefits which should make them happy.

Mr. DINSDALE: You mentioned the United States. There also is another government involved in the negotiations and they support the High Arrow dam. Do you not think the government of British Columbia should be taken into consideration in these negotiations?

Mr. DEANE: It certainly should; but this is the area in which I feel the federal government should take a firm stand because of the land and the people; they should exert their jurisdiction in those areas and say, "you like High Arrow but we cannot accept it; so you will have to accept something else". The provincial government got in there under different circumstances. It got in there when the old British Columbia Power Commission wanted this block of early firm energy. However, conditions now are quite different.

Mr. PATTERSON: I have a supplementary question. You said that the federal government should exert its jurisdiction. Where does it get the jurisdiction in that particular regard?

Mr. DEANE: Under the international rivers act.

Mr. LEBOE: No.

Mr. DEANE: How do you think they stopped the Kaiser dam?

Mr. PATTERSON: The whole proposal was changed in that particular bill.

Mr. DEANE: Do you mean to say the federal government does not have the right to step in on that?

Mr. PATTERSON: The clause that was used was deleted from that bill. The clause they were going to insert which declared it to be in the national interest was deleted because of the opposition raised against it. As I understand it, the federal government has no jurisdiction in this particular respect.

Mr. HERRIDGE: Is it not true that no dams can be built on an international river without a licence from the federal government?

Mr. DINSDALE: I think we are departing slightly from a supplementary question.

The CHAIRMAN: We certainly have wandered.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I have a question with regard to Mr. Dinsdale's point. In the presentation of the government there was an estimate or a forecast of possible periods in which there might arise conflicts between United States interests and our own. When you were saying just now that there should be no conflicts, I was interested in this. I submit one would be when power installations were made at Mica. Would you agree with that forecast?

Mr. DEANE: When power units are installed at Mica is the time that the best use of resources would be made by British Columbia Hydro negotiating with Bonneville in respect of some type of equal exchange agreement. This is outside the treaty.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This was a comment on one of the suggested periods of conflicts of interest between the United States and ourselves.

Mr. DEANE: Well, if we decide to operate completely independently then actually this conflict is not between Canada and the United States. In this case Canada would have to meet her commitments under the treaty and this would affect firm generation at Mica. However, the loss of firm power at Mica could be overcome by an equichange agreement. That is my view.

Mr. DINSDALE: Today the process of negotiation between provincial governments and federal governments is being referred to as co-operative federalism, and I merely put that forward as perhaps one of the motivating principles behind the negotiations to this treaty.

I have one further question, the answer to which you did not specifically deal with in your brief. The British Columbia government makes the claim there would be more damage to the intangible values in the East Kootenay development than there would be in the High Arrow. Have you any comments on that respect?

Mr. DEANE: Are you speaking of the east Kootenay development?

Mr. DINSDALE: Yes.

Mr. DEANE: I do not know the east Kootenay area. If you want an opinion—and I have not gone into this with other people—I would like to examine first the over-all aspects of a lake in the east Kootenay regardless of power. I am speaking of the addition of a lake to that valley and, on first round, I would say this would be an advantage. Now, there is a matter of winter range or elk and many other factors which I do not know about in that area, so I cannot say or give you an opinion in respect of the east Kootenay flooding.

The CHAIRMAN: Would you proceed, Mr. Byrne.

Mr. BYRNE: Mr. Chairman, most of my questions have been asked, which I am sure the committee will be grateful to hear. However, the witness did refer to something I had said during the discussions on this question, specifically that I had made reference to the Arrow lakes as a narrow lake and of a fjord type. He also gave the impression I had little feeling in respect of the people of Arrow lakes. I want to clear this up at once. There is no suggestion that I have not every sympathy for the people who will be flooded out in the Arrow lakes and who will have to be relocated. But, what my objection has been since this started is that it seems to me that anyone who argues against High Arrow is at the same time arguing in favour of the so-called McNaughton plan. I am not saying that the witness favours the McNaughton plan, but of the two proposals up until this point, it has been one or the other. So, we do have people in the east Kootenay who certainly will be dislocated. I just wanted to clear that up, Mr. Chairman.

The CHAIRMAN: Thank you.

Mr. BYRNE: I am speaking in support of the people in the east Kootenay.

Mr. DEANE: I would like to say I am in complete agreement with you. In respect of the east Kootenay I am not proposing flooding it.

Mr. BYRNE: You made a very dramatic final statement earlier today when you completed your submission and quoted "Flanders Fields." Do you not think this would apply with greater force to the east Kootenay, if you were suggesting that the flooding of our land was an important issue, bearing in mind that there would be at least 70,000 acres more flooded?

Mr. DEANE: There is one point in respect of the east Kootenay; there are more options. You can flood the south end and not the north end. It is not a one package.

Mr. BYRNE: But, under the McNaughton plan—

Mr. DEANE: If I may interrupt, that is only one plan. In respect of the Bull river area there is very little settlement; but, this is rather academic. If there are people to be displaced and lands which are valuable I fully subscribe to the idea of not flooding them, and that is my basic proposition.

Mr. BYRNE: Of the number of engineers that you have been able to get in support of your submission, namely 24, have you an estimate of the number of engineers who would have similar qualifications or near similar qualifications who are employed by C.M.&S. or are in the west Kootenay area.

Mr. DEANE: I did not take the time to count them. They are listed in the book. I certainly did not canvass all, by any means, because for one thing I did not have the time.

Mr. GELBER: Mr. Chairman, I have a supplementary question.

Mr. Deane, when these engineers signed do you feel they were giving a professional opinion or simply signing as residents who did not want to be flooded out?

Mr. DEANE: Primarily as residents.

Mr. KINDT: Mr. Chairman, if I may—

Mr. BYRNE: Please allow me to complete my questioning.

Mr. DEANE: But, certainly they are responsible residents.

Mr. BYRNE: If these engineers had perused the federal government white paper, the provincial government submission and other related material which go to the benefits of the proposed treaty, would they base their approval on your submission?

Mr. DEANE: They felt strongly about the Arrow valley and I am sure from the study they made they felt that a co-operative plan could be achieved without flooding this valley; in other words, they felt that Mica or High Arrow was the essential need, not both.

Mr. BYRNE: I have one more question, which is hypothetical.

Mr. KINDT: Mr. Chairman, I would like to make a statement.

Mr. BYRNE: Just a moment. There are quite a large number of engineers presently in the east Kootenay area and I suppose they are in the same proportion to the number of actual employees of C.M. & S.; do you think I would have any difficulty in getting the names of 25 engineers who would be prepared to sign a submission opposing the flooding of the east Kootenay valley?

Mr. DEANE: I think I could have put them on my sheet; if you would give me another two weeks I will get them, if you like.

Mr. BYRNE: From the east Kootenay?

Mr. DEANE: No, supporting my brief, which does not flood the east Kootenay. They are concerned about the Arrow too.

Mr. BYRNE: I want you to understand my opposition all along in respect of this question of the McNaughton plan versus the treaty. It just means we either accept this treaty and Libby—and, of course, Libby has become the very key to this whole matter—or we accept some other plan. If we adopt the McNaughton plan of flooding the Kootenay the Libby project is out and finished. So, it is necessary to flood the entire east Kootenay from Bull River to Luxor in order to get the amount of water required for storage. Therefore, I am just asking you do you think I would have any difficulty obtaining signatures from at least 25 or 30 engineers who would oppose the McNaughton plan?

Mr. DEANE: Well, you are the member for that area. You live there; you should be able to answer your own question. I am not going over there to canvass.

Mr. BYRNE: I certainly have not had any proposal at the present time.

Mr. KINDT: Mr. Chairman, in view of the fact there are only three minutes left until 6 o'clock perhaps I should defer my questioning until this evening.

The CHAIRMAN: Mr. Kindt I see that Mr. Willoughby has left and I have lost yourself and Mr. Turner on my list of questioners so you may carry on at the present time.

Mr. TURNER: Mr. Chairman, I shall only be five minutes.

Mr. KINDT: I said some time ago that I would only take five minutes and shall endeavour to keep my word. In doing so I must make several brief statements.

Mr. Deane, you made the statement that this treaty as it now stands, if implemented, will destroy resources which will grow in value in relation to the immediate production of power?

Mr. DEANE: Yes.

Mr. KINDT: You also made the statement that in so far as Canada is concerned, this is a money making venture. You mentioned the sum of \$254 million for downstream power benefits and \$64 million for flood control, making a total of \$318 million which we are to receive from the United States. In other words, this is a straight cash deal and we are to be paid in dollars?

Mr. DEANE: That is right.

Mr. KINDT: You do agree with that statement?

Mr. DEANE: I agree with it, certainly.

Mr. KINDT: In other words this deal represents a purchase on the part of the United States for certain benefits. It is a cash deal similar to the Alaska purchase, or some other such purchase; is that right?

Mr. DEANE: Yes.

Mr. KINDT: That is one side of the ledger. On the other side of the ledger we have the Mica development to be paid for out of the money Canada receives, and Canada will build two storage dams at High Arrow and at Duncan storage. You object particularly to the High Arrow dam because 1800 people will be flooded and forced to move. You feel we are sacrificing those people and this land, and all the associated intangible values, including six cemeteries which will be flooded?

The CHAIRMAN: I hope you are going to reach the question, Mr. Kindt.

Mr. HERRIDGE: Mr. Chairman, other members have been twice as long as Mr. Kindt.

The CHAIRMAN: There is no question regarding the length of time a member takes in asking questions. I want Mr. Kindt to take as much time as he requires.

Mr. KINDT: I could ask the questions in another way and take ten minutes.

The CHAIRMAN: I am anxious for you to get to the questions.

Mr. KINDT: That is what I am attempting to do. I am asking the witness whether he agrees with this summary of his statement.

What we are doing is balancing cash against these intangible benefits to which you have referred; is that right?

The CHAIRMAN: I should like the record to show an answer to at least one of the questions you have asked.

Mr. DEANE: Canada certainly is receiving cash. What Canada will have to do with this cash is build dams and flood one valley as well as some other areas where the land values are less.

Mr. KINDT: Yes, that is right.

Mr. DEANE: We are not receiving the cash exclusively in return for this valley; that is only part of the deal.

Mr. KINDT: That is right. The whole consideration includes the development of the Libby dam and the conditions there. The main theme of your argument has regard to the High Arrow storage development necessitating the removal of 1,800 people is that right?

Mr. DEANE: Yes.

Mr. KINDT: You are opposed in that regard?

Mr. DEANE: I am very much opposed.

Mr. KINDT: I rest my case at that point.

Mr. TURNER: Mr. Chairman, perhaps the committee would bear with me for five minutes, as I am the last questioner?

Some hon. MEMBERS: Agreed.

Mr. TURNER: Mr. Deane, do you feel that the protocol and the sales agreement added some improvements to the original treaty as negotiated and signed in 1961?

Mr. DEANE: Yes, and they are listed on the right hand side up here.

Mr. TURNER: The lump sum payments for 30 years of downstream benefit power with power increase owing to renegotiating the average flow value would be an improvement over the original treaty; is that right?

Mr. DEANE: That is right.

Mr. TURNER: Is the reduction of the storage assigned to United States control compared to that required to produce Canadian downstream benefit entitlement, thus reducing Canada's storage commitment after 30 years, an improvement?

Mr. DEANE: That is a matter of interpreting the clauses. I was not very much concerned about this feature in the original treaty. I am sure legal individuals feel this is an improvement.

Mr. TURNER: Does the fact that flood control commitments by Canada have been tightened up to prevent unwarranted calling for Canadian storage represent an improvement?

Mr. DEANE: I think that is a significant improvement.

Mr. TURNER: Is the clarification of Canadian diversion rights an improvement?

Mr. DEANE: I do not consider that a significant improvement. I do not think we were in any danger there in any event.

Mr. TURNER: You consider that this is something of an improvement?

Mr. DEANE: Legally it is an improvement, yes.

Mr. TURNER: Thank you very much.

The CHAIRMAN: Gentlemen, I am sure you want me to thank Mr. Deane for his very helpful and informative brief.

Some hon. MEMBERS: Hear, hear.

The CHAIRMAN: I should like to ask members of this committee to kindly attend our next meeting tomorrow morning at 9 o'clock in our regular room, 153 D, at which time our witnesses will be representatives sent to Ottawa by the Communist party of Canada.

Mr. GELBER: Do we have a brief in this regard?

The CHAIRMAN: We have no brief from that organization.

Mr. GELBER: I think we should set a time limit for their presentation, otherwise we will be listening to long speeches.

Mr. PATTERSON: Did we not make a stipulation that unless we received a brief we would not hear the witnesses?

The CHAIRMAN: Yes, that is true, but I would like to point out that the steering committee was quite late in indicating to the Communist party of Canada that we would be able to hear them and, therefore, I would ask members of this committee to recognize the fact that these people were perhaps under some inhibition in this regard.

Mr. PATTERSON: If they anticipated appearing before this committee, surely they have been working on their brief.

The CHAIRMAN: I presume that is so, Mr. Patterson. Perhaps it would be possible to accord to the Communist party of Canada the full period from 9 a.m. until 11 a.m. I do not want to limit members of the committee. We could meet tomorrow afternoon if necessary.

Mr. GELBER: I think if we follow that practice, Mr. Chairman, we will be limiting members of this committee in respect of questions. I suggest we allow the Communist party one half hour to present their case and utilize the remaining time for questions.

The CHAIRMAN: I would appreciate receiving the views of other members of this committee who feel strongly in this regard. I am not referring to our feelings in respect of the particular witnesses but in respect of the general principles that we have agreed to hear, allowing witnesses a fair and proper opportunity to present their cases.

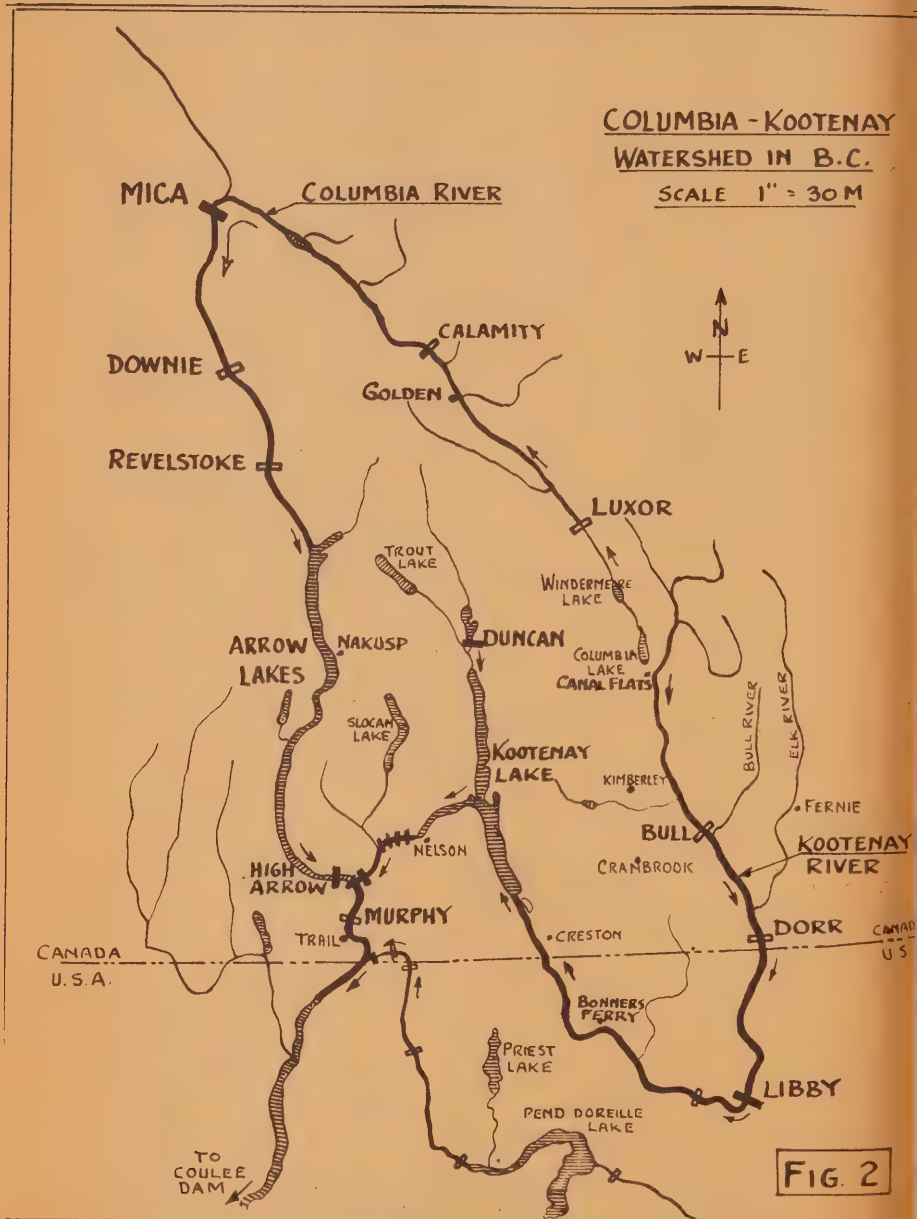
Mr. TURNER: Mr. Chairman, we are unaware of the situation at this time. Perhaps we should wait until tomorrow, at which time we will have a much better understanding of the situation, and then make our decision.

The CHAIRMAN: Thank you gentlemen, for your assistance. We will adjourn until 9 o'clock tomorrow morning.

APPENDIX O—1



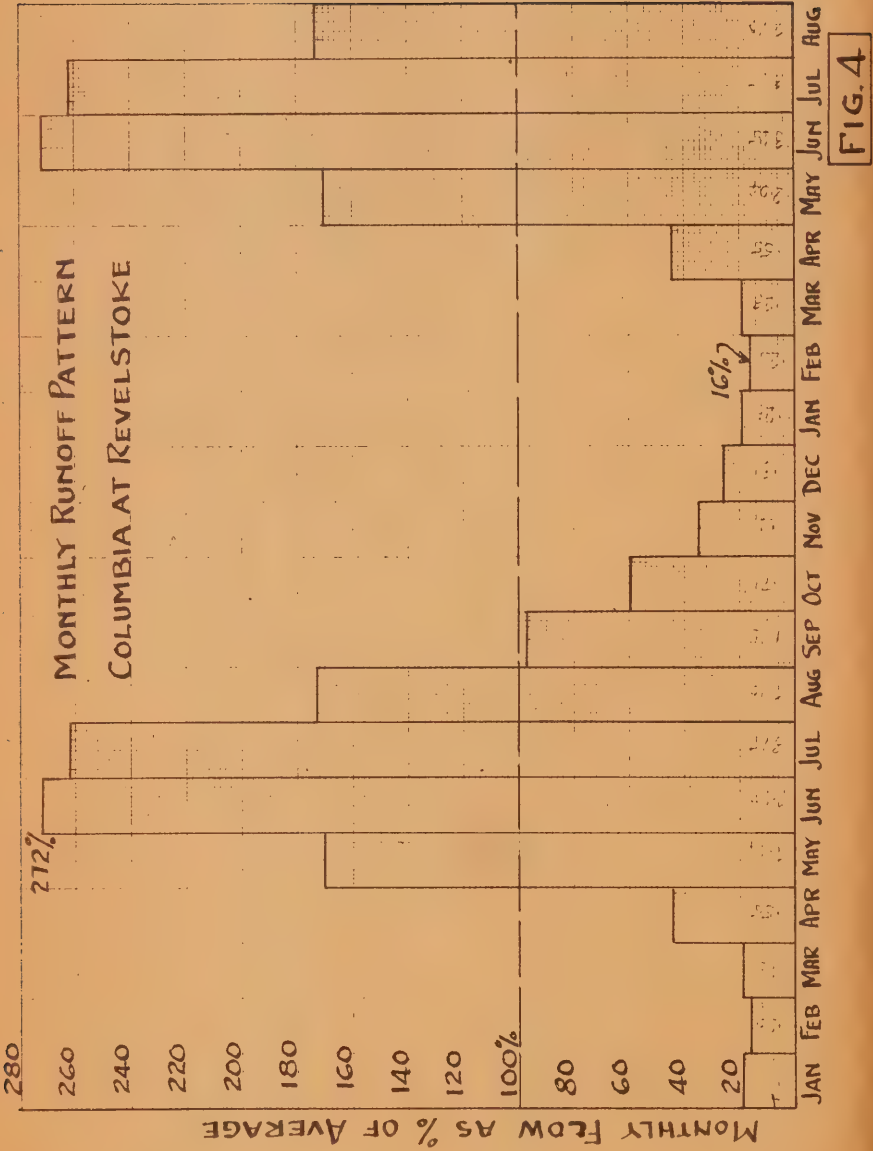
APPENDIX O—2



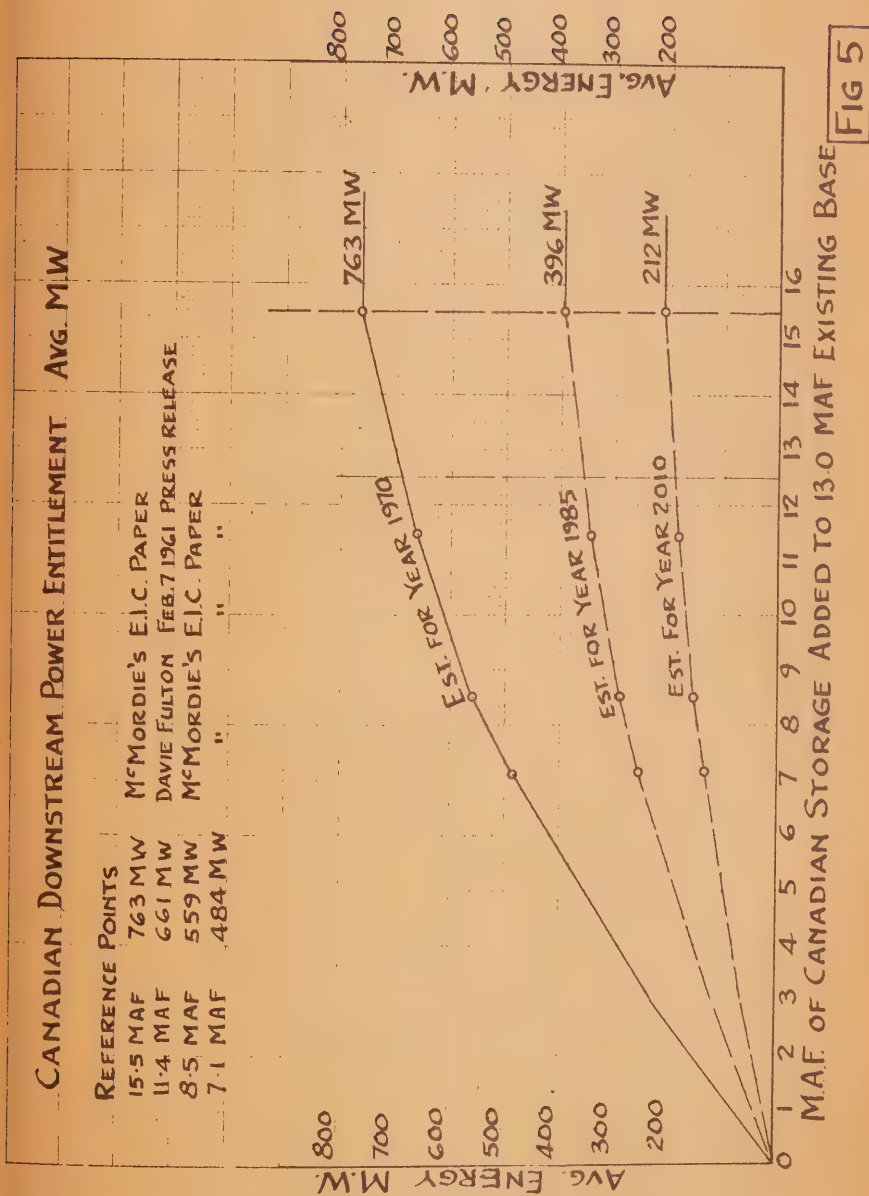
APPENDIX O—3



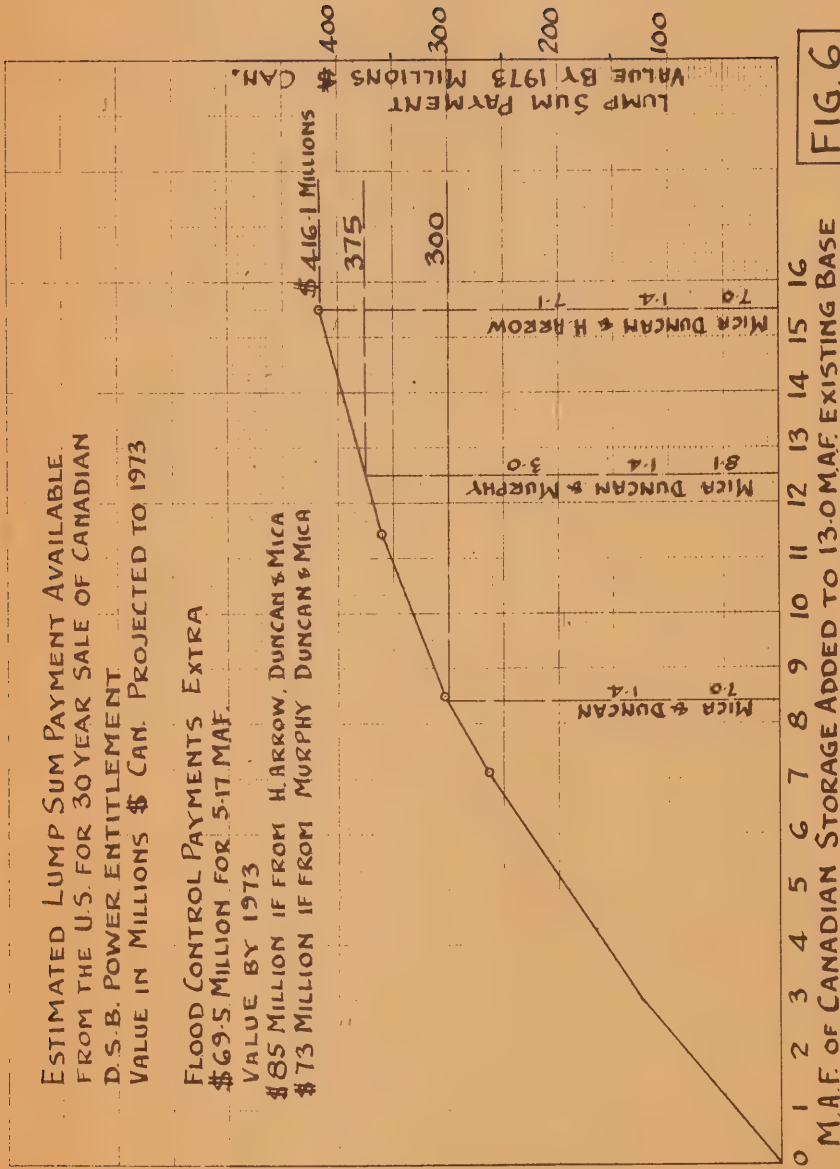
APPENDIX O-4



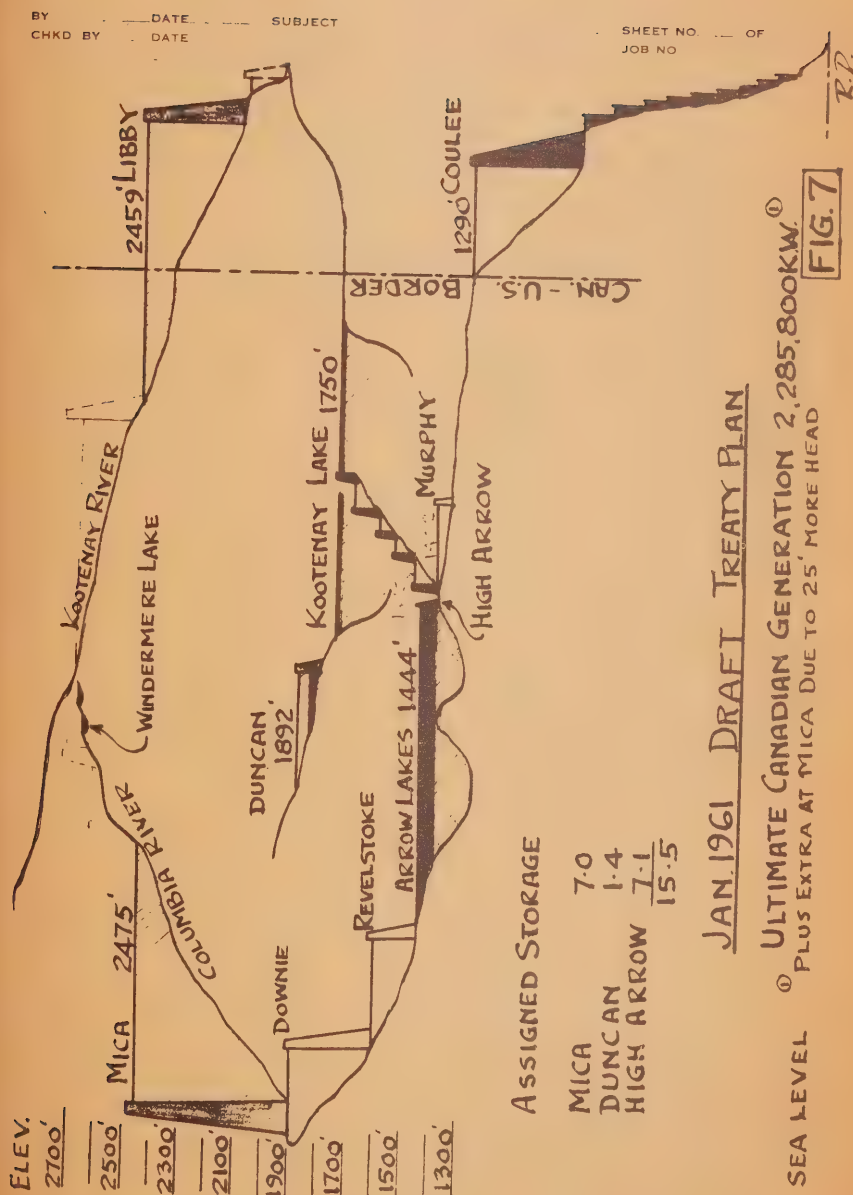
APPENDIX O—5



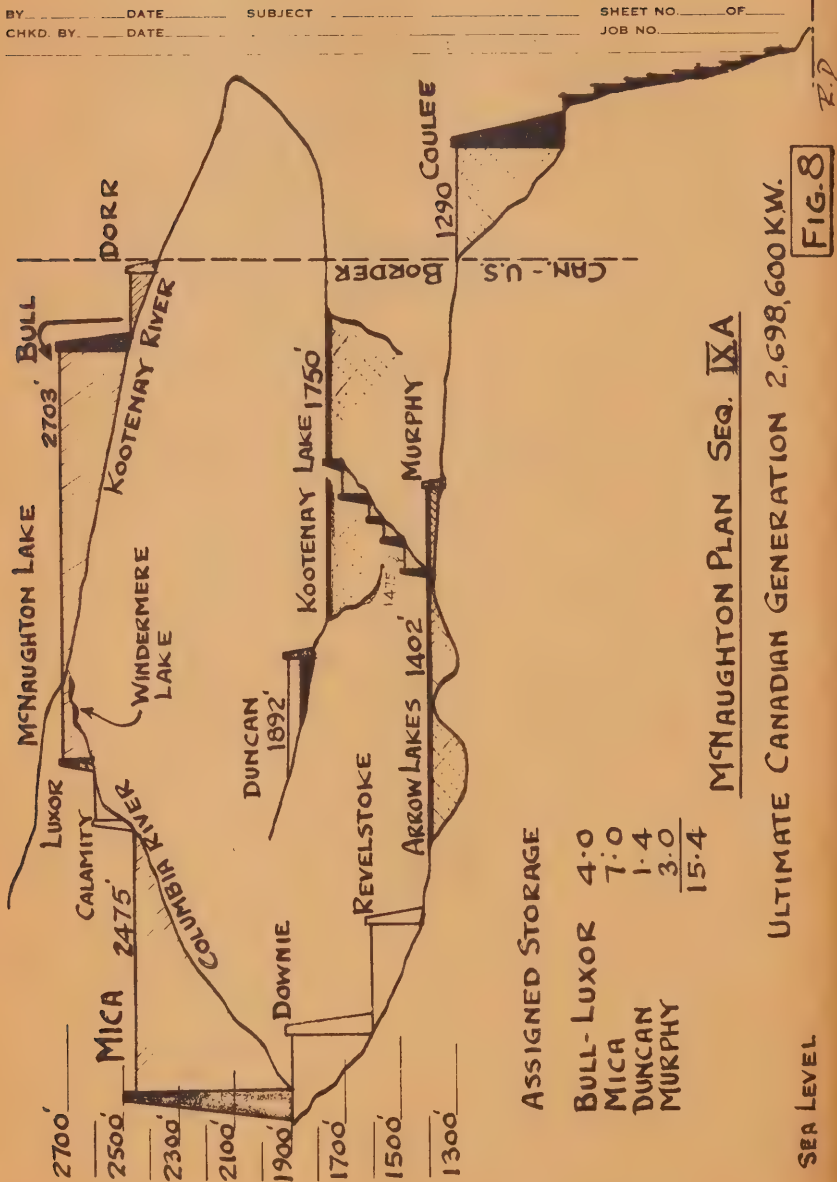
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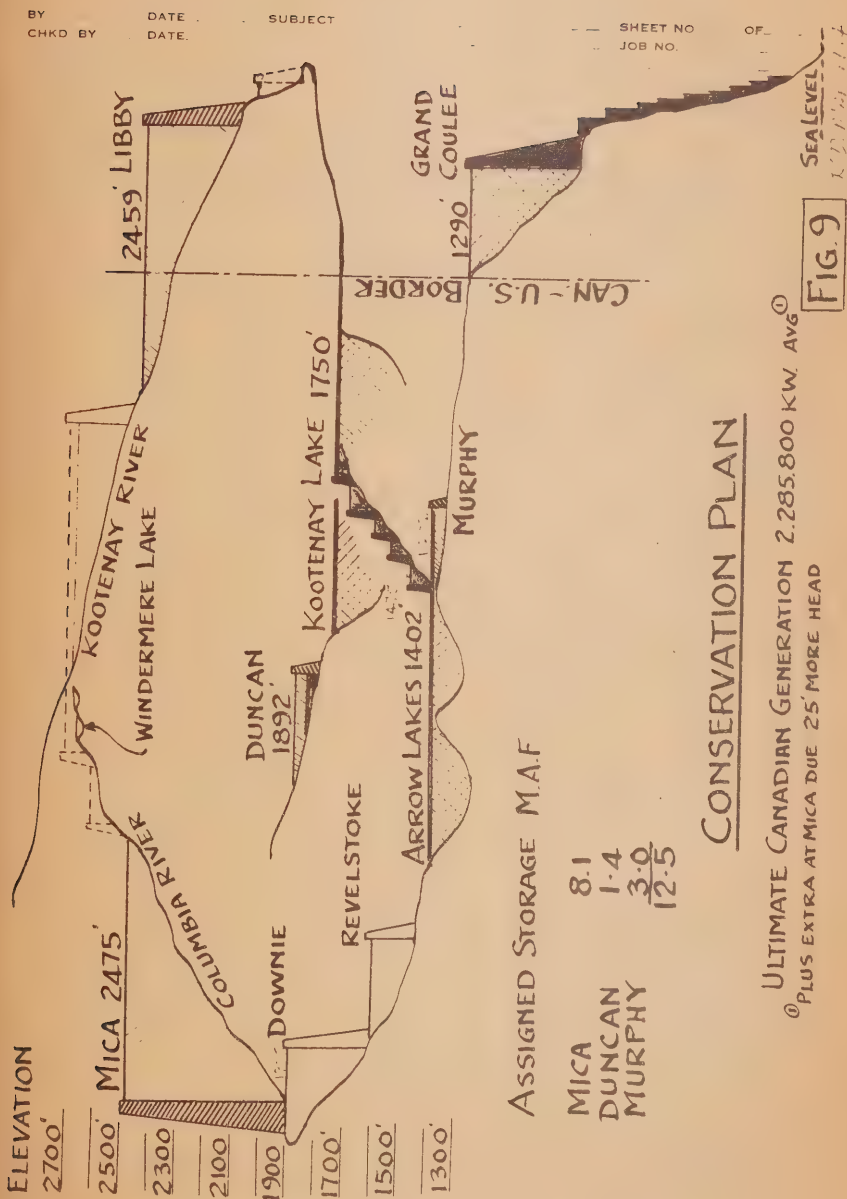
APPENDIX O—7



APPENDIX O—8



APPENDIX O—9



APPENDIX O—10

ECONOMIC COMPARISON OF ALTERNATE SCHEMES

DAMS INCLUDED IN PACKAGE	AT-SITE POWER AVG. K.W.	ASSIGNED STORAGE M.A.F.	MILLIONS OF DOLLARS		LUMP SUM PAYMENT	PROFIT
			COST OF PROJECTS	FLOOD BENEFIT NET COST		
MICA DUNCAN & HIGH ARROW _{7.0 1.4 7.1}	731,000	15.5	448	85 363	416	53
MICA & DUNCAN _{7.0 1.4}	731,000	8.4	290	73 217	300	83
DUNCAN & H. ARROW _{1.4 7.1}	NIL	8.5	203	84 119	304	185
MICA, DUNCAN & MURPHY _{8.1 1.4 3.0}	950,000	12.5	416	73 343	375	32

NOTES:- MICA INFLOW DURING MAY JUNE & JULY 8-3 MAF
FLOOD CONTROL TRANSFERRED FROM H. ARROW TO MICA REDUCED IN VALUE
BY \$12 MILLION DUE TO LONG CONSTRUCTION TIME OF MICA.
WITH MICA ENGINEERING NOW WELL ADVANCED FLOOD CONTROL COULD NOW
BE MADE AVAILABLE AT MICA IN 6 YEARS INSTEAD OF 9 ASSUMED ABOVE.
PROJECT COSTS FROM PROTOCOL & ICREB 1959 REPORT
LUMP SUM PAYMENTS ESTIMATED IN PROPORTION TO D.S.B. K.W.H.

FIG 10

R. Deane Mar 22 1964
Kossland B.C.

OF SHEET NO. _____
JOB NO. _____

SUBJECT _____

DATE _____
CHKD. BY _____

HOUSE OF COMMONS

Second Session—Twenty-Sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 22

FRIDAY, MAY 8, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

Mr. Leslie Morris, Secretary and National Leader, Communist Party
of Canada

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (<i>Okanagan-</i>	Leboe,
Byrne,	<i>Revelstoke</i>),	Macdonald,
Cadieux (<i>Terrebonne</i>),	Forest,	MacEwan,
Cameron (<i>Nanaimo-</i>	Gelber,	Martineau,
<i>Cowichan-The Islands</i>),	Groos,	Nielsen,
Cashin,	Haidasz,	Patterson,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Konantz (Mrs.),	Turner,
Dinsdale,	Langlois,	Willoughby—35.
Fairweather,	Laprise,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

ORDER OF REFERENCE

THURSDAY, May 7, 1964

Ordered,—That the name of Mrs. Konantz be substituted for that of Mr. Pennell on the Standing Committee on External Affairs.

Attest

LEON-J. RAYMOND,
The Clerk of the House.

MINUTES OF PROCEEDINGS

FRIDAY, May 8, 1964
(38)

The Standing Committee on External Affairs met at 9.00 a.m. this date, the Chairman, Mr. Matheson, presiding.

Members present: Mrs. Konantz and Messrs. Byrne, Cadieux (*Terrebonne*), Chatterton, Deachman, Gelber, Haidasz, Herridge, Kindt, Leboe, Matheson, Patterson, Ryan, Turner (14).

In attendance: Mr. Leslie Morris, Secretary and National Leader, Communist Party of Canada.

The members resumed study of the Columbia River Treaty and Protocol.

The Chairman introduced the witness, Mr. Lewis, who read a brief on behalf of his party, expressing opposition to the Treaty, and was questioned.

At 10.15 a.m., the committee adjourned until 4.00 p.m., Monday, May 11, 1964.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

FRIDAY, May 8, 1964

The CHAIRMAN: Gentlemen, I see a quorum.

I am happy to welcome to our committee Mrs. Konantz.

Mr. HAIDASZ: How about a picture?

The CHAIRMAN: The witness we have this morning is Mr. Leslie Morris representing the Communist party of Canada. There is a submission that has been distributed. The reason this comes to your hands so late is the late date on which the Communist party of Canada was informed they could be heard by the committee. I am advised that the entire submission will take approximately one half hour, so I would suggest that Mr. Morris first of all identify himself, give us his own qualifications, the capacity in which he comes here today, whom he represents and so on, and then proceed to a reading of the brief which will be followed by questions from members.

Mr. LESLIE MORRIS (*Secretary, Communist Party of Canada*): I am Leslie Morris, the Secretary of the Communist party of Canada and National leader of the party. I am speaking on behalf of our party to this standing committee on external affairs.

I should preface my remarks by saying that I should change the form of address to "Hon. ladies and gentlemen".

We wish first to state our opinions about the general problem of electric power.

Our opportunity to generate enormous amounts of cheap electrical power is here: In the watersheds of rivers and lakes, in some of our tidal waters, enormous reserves of our natural gas, petroleum, coal and uranium. With water power resources of more than 49 million horsepower at minimum flow, our installed turbine capacity is still less than 28 million horsepower. Our abundant fuel for thermal stations is distributed from sea to sea in locations which complement the waterpower and invite the generation of cheap power anywhere it is needed.

In Canada thermal stations mean more than simply adding so much more capacity. Combined with hydropower, thermal stations meet peak load demands, or deficiencies caused by low water. Abundant fuel makes thermal power an economic link between areas with adequate waterpower. Increasing the size of thermal units, and their efficiency, locating coal-powered units right at pithead and so on and co-ordinating them with the hydroelectric stations, is bringing down the cost of their power.

What is now plainly needed is an east-west power grid.

The negative attitude of the federal government towards the necessity for an east-west Canadian power grid should be compared to the attitude of the men who brought modern Canada into being nearly a hundred years ago. When the founding fathers finally achieved their grand design and united this land from sea to sea they recognized that, for the various colonies to become members of one federal state and continue to grow, there must be railways to link them together. In 1867, Canadian confederation could not have worked without railways—running east and west within Canada. The necessity for railways was recognized and became one of the strongest of all the arguments

in favor of confederation. The promise of a railway to the Pacific coast was one of the conditions upon which British Columbia joined.

As we prepare to celebrate the 100th anniversary of confederation we should realize that the necessity for railways which was decisive in 1867 is duplicated today by the necessity for a Canada-wide grid as the vital power basis for our economic independence. If we compare the cost of a grid in our economy of today with the cost of railways a hundred years ago, the grid will be relatively cheap.

That it will bring economic advantage is indicated by developments in the United States where great electric power systems have linked their service in a great power grid which extends southward from the Canadian border to the Gulf of Mexico and westward from the Atlantic coast to Montana.

Government's Power Policy

On October 8, 1963, the Minister of Trade and Commerce, the Hon. Mitchell Sharp, informed the House of Commons that the government has adopted a policy which will permit the development of power sites in Canada for the purpose of exporting power to the United States.

A few days later the United States Secretary of the Interior, Mr. Udall, informed newspaper reporters that the plan as a whole includes a great deal and that the two governments, (United States and Canada) "are moving in the direction of creating a gigantic pool of their combined natural resources". Asked by reporters about the reason for this the Secretary pointed to the pressing need in the United States to get hydroelectric energy from Canada.

The policy change announced by Mr. Pearson's Minister of Trade and Commerce certainly is related closely to the proposals of the United States Secretary of the Interior. There are signs that the first objective is to help United States interests make the Hamilton river part of Mr. Udall's "gigantic pool" of Canadian resources controlled in the United States. No doubt United States interests who are tied in intimately with electric power will participate heavily in the ownership of the power plant and transmission lines.

It is said the producing company will contract to deliver without interruption a million and a half horsepower to Consolidated Edison for use by public utilities in New York City: "for a relatively long period of years."

This means that power contracted for specifically from the Great Falls will be allowed to become indispensable to the normal operation of the city of New York. That would mean in effect that Canada would lose control over the biggest power site in the western hemisphere.

This is why it is so disturbing to find the following in the text of the government's statement. I quote from *Hansard*, Oct. 8, 1963, page 3301:

The government also believes that it would be in the national interest, in suitable cases, to license the export of large blocks of firm power to United States utilities to permit the development of large scale remote hydro or other power projects which would not be viable unless supported by the export for long periods of a significant proportion of the power generated. . .

This is really an endorsement of the United States government's plan to generate power from a number of great Canadian rivers, transmit the power directly to the United States and, thereby, change the emphasis in Canada's economic development from east-west for industrialization and economic independence, to north-south for increasing dependence upon export of raw materials to the United States.

We believe the future of our country would not be served by this plan.

Canada Can Export Power

This does not mean that Canada should not export electrical energy under any circumstances. We can export power and secure very substantial benefit. What is required, is that all such export must be governed by Canadian law which expresses and protects the fundamental interests of this country and her people.

Such a law should state as a minimum, that:

The federal government may authorize the export of electrical energy from Canada only by distributing systems which combine the power made available by several generating stations.

The amount of power which the government authorizes to be exported shall not at any time be greater than the actual surplus available to the system in excess of current demand, and after adequate allowance has been made for foreseeable growth of demand in Canada.

Every contract shall include mutually binding provisions for the withdrawal of the power from export at the end of any period contracted for.

Contracts for the export of power from Canada shall be for periods up to but not longer than 15 years. Their renewal shall be subject to the conditions named in the second point made above.

Authority shall not be granted for any single generating establishment in Canada to contract to export its power or part of it directly. Export shall be by central distributing systems only. No contract for the export of power from Canada may tie a specific generating establishment or a specified part of the energy generated in such an establishment to a specific importer of power.

Mr. LEBOE: Mr. Chairman, at this point I would like to interject to say that I am very much disturbed. We seem to be completely departing from the procedure that we have been following in this committee. I just want the committee to know that I do feel disturbed.

We have consistently refused witnesses the opportunity of reading briefs into the record. I have just been looking at the beginning of this document and I find that it is headed, "Statement of the Communist Party of Canada on the draft Columbia River Treaty". I am disturbed that we are departing from our usual practice, and I want the committee to know that I am disturbed.

The CHAIRMAN: The Chair shares your concern at our departure from what has developed into a uniform pattern. However, it was only on Tuesday of this week that communication was sent, on the recommendation of the steering committee, to this witness or to the group he represents, confirm that they would be heard today. In the light of those circumstances it seems necessary that they be afforded an opportunity to present their material as succinctly as possible; and I understand the brief is so short that it can be read in one half hour, thereby affording members one and one half hours for questioning.

Mr. LEBOE: This committee has been sitting for some time and anyone who was interested in presenting material could have had it prepared months ago.

The CHAIRMAN: Again, Mr. Leboe, there was a letter received by the Department of External Affairs, not by the standing committee and not by the Chairman, dated March 6, 1964, in which the executive secretary of the Communist Party of Canada advised the department that in the event that there are hearings in connection with the Columbia treaty agreement they wished to advise that they had a submission they wished to make in connection with that treaty. They say they would welcome hearings from the department

in connection with this matter, including an appropriate date on which such a submission could be made.

I think we must be just in these circumstances. There was no confirmation or any solid arrangement that the Communist party of Canada would be heard until as recently as Tuesday. We were not making a special case for them but the steering committee discovered there would be this time available today and therefore allotted it to the Communist party of Canada as we are anxious to proceed as expeditiously as possible. Therefore, any failure to distribute briefs is not to be attributed to the witness today.

Will you please proceed?

Mr. MORRIS: Such provisions as these need not inhibit the export of power from Canada to the United States in any amounts that are surplus to Canada's needs. Provincial power commissions could proceed with large scale development of new sites, including rivers which are now considered remote. By exporting the over-all surplus that will be made available they can help pay for the new power development and transmission. In this way very large amounts of power can be made available for export to the United States and Canada can benefit without endangering any national interests.

The one essential condition is that power from any one source in Canada shall not be permitted to become indispensable to the operation of an industry or a community in the United States. Power shall be exported only by distributing systems which combine the power from several sources.

In principle, what has been written above about the export of power applies also to natural gas, petroleum and coal. It will apply to uranium and atomic or nuclear power in the future.

There is one type of power however to which this principle should not be applied: the flow of rivers. This is illustrated by the issue of the Columbia river today.

If all its power were generated in Canada and part of it exported to the United States, such export might be stopped when it can be used in Canada. But, if the water is diverted and great generating plants in the United States depend upon the increased volume, Canada can never recapture that flow again.

Water is needed in Canada—for power, for agriculture, and as the indispensable prerequisite for continued growth of population.

Our country needs a Canadian power policy to express Canadian needs and provide guide lines for the development of our rich power resources. This is the indispensable basis for all-round industrial development. Without it Canadian industry cannot adjust to the radical change now taking place in methods of production—the new scientific-technological revolution.

The Columbia Treaty

We wish to add our voice to the growing number of responsible and dedicated Canadians who have called for rejection of the draft Columbia River Treaty.

The main issue is this: Either we sell a magnificent natural resource to the United States of America or we independently develop it for the maximum benefit of our own country.

For a sum of 318 million United States dollars Canada undertakes to construct three storage dams on our territory and to allow the United States to build one on hers which floods back into Canada. These dams would even out the flow of the Columbia and Kootenay river waters and result in a twenty percent increase in power production on the Columbia in the United States.

The dams would also prevent floods in the United States Columbia river basin. The value of this to the United States is difficult to overstate. Not only

will it prevent damage but also it will guarantee additional industrial sites in the Portland area the value of which is measured in hundreds of millions of dollars.

Furthermore the United States will get an assured regular supply of water for irrigation, domestic and industrial use. This water is desperately required in California and the entire southwest portion of the United States.

All of these benefits are very real and they are absolutely assured for all time by reason of the control features contained in the draft treaty.

On the other hand, Canada gets only the cash to make these enormous benefits possible.

It is claimed (by supporters of the draft treaty) that in the future (1973 at the very earliest) Canada will be able to develop some power for itself if we see fit to bear the additional cost of installing generators at one of the sites—Mica creek. We use the word "claimed" because this is not a condition of the draft treaty and it is by no means assured.

The probability is very high that Canada will never get power, let alone cheap power, from the Columbia development.

In our view the draft Columbia River Treaty and all its attachments is an example of the policy of subordinating the economic development of Canada to that of the United States of America, the policy of "integration".

The essence of this policy is the concentration by Canada on the production of raw materials for the benefit of United States industry.

The economic effects of this policy are becoming apparent even to those Canadian governments which have continued in the main to support it and resistance to it is growing in all sections of the population.

The policy of integration is basically a policy of the export of jobs. If we are to solve the serious unemployment problem in Canada we must put our own resources to use primarily in our own country. We must develop our manufacturing and secondary industries. Because of the decisive nature of power in modern industry and its growing use as an essential raw material itself in the electro-process industries, the giving up of potential hydro-electricity makes for the continuation of the subordinate nature of our economy and guarantees that once the original storage dams are built we will continue to export jobs.

The policy of the draft treaty is essentially one of integration, because basically it is a proposal to sell a particular Canadian raw material, stored water, in order to provide cheap downstream power for the U.S. industry.

Under the terms of the draft treaty the United States is given control of 15½ million acre-feet of Canadian water, since this water is committed to their first use. In addition we place another 5 million acre-feet of Canadian water under their absolute control with no strings whatsoever being attached.

Most raw materials are capable of being used only once. They go into the final product and that is the end of them. But stored water can be put to use many times, provided that it is first put to use generating electricity upstream, in this case in Canada. It is possible for Columbia water to serve both the needs of Canadian industry and the United States industry as well provided only that Canada and not the United States retains the right for first call on its use. In other words it is necessary for us to retain our present control.

But the whole purpose of the draft treaty works against this objective. This is most strikingly shown in the operating annexes, which are very intricate, but especially in article XIII, which states: "Neither Canada... nor the United States, shall... divert for any use, other than a consumptive use, any water from its natural channel in a way that alters the flow of any water as it crosses the Canada-U.S. boundary within the Columbia river basin."

This article contradicts article II of the International Boundary Waters Treaty of 1909, which says: "Each of the high contracting parties reserves to itself . . . the exclusive jurisdiction and control over the use and diversion, whether temporary or permanent, of all the waters on its own side of the boundary which in their natural channels would flow across the boundary or into boundary waters."

We are about to relinquish the right to diversion, which is essentially a matter of sovereignty as well as good economics.

The McNaughton plan is essentially one for the development of hydro-electric power in Canada. Its main feature is the diversion of the Kootenay river in Canada into the Columbia in Canada. This would result in a additional one million kilowatts of installed capacity in Canada. It would provide the water needed for irrigation on the prairies. And since no water would be taken out of the Columbia itself the control dams in Canada would result in large benefits to the United States.

However, we do not approach this matter as a dispute solely between two plans. Plans are for engineers. The real issue, we feel, is to establish a firm policy of Canadian control—and then engineer accordingly.

The need for Canadian control is shown obliquely in the Feb. 15, 1964 issue of *Business Week*, which puts the matter as follows: "There's a wealth of power in the hills of Canada—40 million kilowatts or more—in the form of fast streams and waterfalls. U.S. and Canadian power interests are taking some close looks at ways to bring it out and put it to work on both sides of the border . . . The new protocol for the treaty on developing the Columbia river, for example, calls for Canada to build three dams, with the power from them all going to public and private systems in the U.S. . . . Some two dozen transmission ties already exist along the border . . . Most observers expect the Columbia, Consolidated Edison and Manitoba projects to reach fruition. Some of the more optimistic, in fact, even speak of a future North American power grid—pooling into one vast system U.S. and Canadian power resources."

What the article had in mind was the potential development of the Hamilton river in Labrador, the Nelson river in Manitoba and possibly the Yukon in the Northwest. The whole idea of the so-called North American power grid is to put it on a north-south basis. By this action the needs of U.S. industry would be placed first.

The government of Saskatchewan has already intervened by stating that its interests in irrigation are foreclosed by the draft treaty.

The full development of an east-west power grid in Canada is also put into question if the Columbia is to serve United States needs first. We feel there is every legal, political and economic justification for a change in power and water policy.

We propose that the Columbia river be developed in Canada along the lines suggested by such plans as General McNaughton's. Let us finance this plan of development ourselves. Let the United States keep the downstream benefits that would materialize from such an action. If they feel that they cannot pay the same \$318 million for the McNaughton series of dams without the provisions of article XIII, then far better for Canada to proceed on its own. In the long run it will benefit us enormously.

But, it is not likely that the United States would fail to contribute. Dams such as those proposed in the McNaughton plan would give the United States enormous benefits just as surely as they would give them to Canada.

Without the draft treaty we retain the right to divert the Columbia into the Fraser, an action which would still be of great value to the United States as far as flood control is concerned.

Some day in the future, when the technical problems of the salmon fishery are solved, a diversion into the Fraser will be an economically viable proposition for Canada. The United States authorities know this and we are confident that they would be prepared to contribute financially to the McNaughton dams if they had some reasonable assurance that we would not prematurely divert the Columbia into the Fraser.

Let Canada, not British Columbia, but Canada, say to the United States: We intend to put our own money to build the McNaughton dams. We will operate them on the basis of our own independent needs first. You can absolutely count on this and make your plans to utilize the resultant controlled flows accordingly. You can keep all the downstream benefits therefrom. In addition, we propose that a simple new treaty be signed and the draft treaty abandoned. For the \$318 million you are now prepared to pay we will sign an agreement with you in which we guarantee to build the McNaughton dams by 1970 at the latest and we voluntarily agree not to divert the Columbia into the Fraser for a period of 35 years from date of signing ... but for this period of time only.

Such a course of action would be thoroughly practical, would further Canada's interests and protect her sovereignty, and would objectively induce Canadian development of on site power production. This would also assist the creation of a national power grid to link our country together. It would not limit our right to divert the Kootenay-Columbia water to the prairies.

Should the United States not agree with this then we should go ahead anyway and foot the bill ourselves. Such an assertion of Canadian initiative would be greeted with enthusiasm by our citizens from all walks of life. It would contribute to the building of our country.

Respectfully yours,

National Executive Committee,
Communist Party of Canada.

24 Cecil St.,
Toronto 2-B, Ontario.

Mr. BYRNE: Mr. Chairman, I do not wish to ask a question, but I would like to compliment the witness on the tenor of his submission. I think at the same time I should apologize for having forecast a comparison of his brief with that of the intemperate and sometimes filthy submission made by Mr. Hayward of the Columbia river for Canada committee.

The CHAIRMAN: Thank you, Mr. Byrne.

Are there any questions?

Mr. HERRIDGE: Mr. Chairman, I would like to ask Mr. Morris one or two questions. In reading your brief I notice you place particular emphasis on the production of power and the need and necessity of retaining it in Canada for our industrial expansion. I quite agree with your contention in that respect. In coming to these conclusions in your brief, did you also give consideration to what Mr. Kindt repeatedly has referred to as the intangible values which, in my opinion, are very important indeed, as they are in the opinion of some of the other witnesses who have appeared before this committee. Did you give consideration, for instance, to the constitutional aspect of the question, the human values, the sociological values and the resources values, such as the preservation of land, forests, fisheries, and things like that, as well as the recreational values—all the values included in the term intangible values. They are very important indeed, and I would like to hear your view.

Mr. MORRIS: I think intangible values have to have a tangible base if they are going to be fruitful. The values of which you speak, which are very precious in my opinion, must have some material base. Our general feeling is that the psyche—the psychology—of Canada, its proper use of human resources, which are our most precious resource, cannot be accomplished unless we change the pattern of our economy. I use the term industrialization. In the brief we use the expression “the fitting of our country into the new technological revolution in which electricity plays an enormous part, greater than ever before.”

We believe that to provide people with food, clothing, shelter, with education and good living standards is dependent finally on the changing of our economic base from that of a raw materials producer essentially, or a parts producer, into a primary producer of industrial goods.

We think the intangible values of which you speak, which of course must constitute the aim of every civilized society, have to have this material base, and that material base, I think, can be summed up as being a change in the economic pattern of Canada along the lines I suggest here.

Mr. HERRIDGE: Do I understand you correctly to say, in effect, that while you have to have a material base—production of goods in a society such as ours—that the purpose of the material base—and I ask you this as a person sometimes spoken of as an idealist—is human happiness in the long run, the development of human happiness, human values, and the development of human purpose.

Mr. MORRIS: Yes.

Mr. HERRIDGE: I have another question.

On page 10 of your brief I see this sentence:

Let us finance this plan of development ourselves.

Have you anything further to give the committee with regard to that suggestion?

Mr. MORRIS: So far as we can see, we believe there is in our country, if the will and the policy are there, a possibility of mobilizing credits and mobilizing private and public capital for the carrying through of a project of this kind, or any similar project. We had that opinion with regard to the trans-Canada natural gas pipe line right from the beginning, and we had that opinion with regard to other great projects in our country.

We feel this is not so much a matter of the existence of the dollars as the will to use them and accumulate them. We feel that with a thorough review and some radical changes in the fiscal structure of our country, and in the loaning of public capital as against private capital in our country, a project of this kind on the Columbia and the Kootenay quite well could be carried through as a public project, as a nationalized project. Our opinion is that the needs even of modern industry are so complex that some control or nationalization, almost, goes without saying. In this regard there will be no problem in accumulating the money.

We perhaps would have certain suggestions if it came down to a matter of where control may come from. However, we are not impressed with the public cry “where is the money to come from?” I think the best answer is world war II and what Canadian labour and capital were able to do. Nothing contemplated here would cost as much. I think Canadian capital could be encouraged to invest in Canada instead of abroad. I think we have \$5 billion of Canadian capital invested abroad. The incentive to invest at home with a policy of national built industrialization I think would bring that money back.

Mr. HERRIDGE: Mr. Morris, then do you believe that all loans obtained abroad by Canadian companies or private industry in Canada are based entirely on the knowledge of the vastness of Canada, the natural resources, and a confidence in the productive power of Canadian labour, technology and experience?

Mr. MORRIS: I think that concept is the property of the Canadian people. I believe that a dream of Canada, of its vastness and amazing potentiality, is possessed by most Canadians quite consciously. I think it is not possessed by the business interests in the same way. Their motivation does not go in that direction; it goes, as I think does the present difficulty with regard to the Columbia, particularly the British Columbia policy of making an opportunist's dollar without regard—

Mr. PATTERSON: That is a personal opinion and not a fact.

Mr. MORRIS: Yes; all these points are my own opinion.

Mr. HERRIDGE: I am interested in this question of raising the money, because I am one who always has protested our going abroad to raise money based on our resources and labour. Do you think we could raise this money as a result of using the national credit of Canada through the Bank of Canada, and by national development loans directed to particular projects in order to mobilize the savings of the average Canadian in support of these particular projects?

Mr. MORRIS: Yes, I believe that is true.

Mr. HERRIDGE: Plus subscription from private industry?

Mr. MORRIS: Yes.

Mr. HERRIDGE: Thank you.

The CHAIRMAN: Are there any other questions?

Gentlemen, I thank you for your attendance early at nine o'clock this morning. We will adjourn until four o'clock on Monday, May 11, when our witness will be the Hon. E. D. Fulton. I would ask everybody to be here as soon as possible.

Mr. TURNER: On a point of order, before we adjourn; at the opening of yesterday's meeting of the committee, the hon. member for Kootenay West referred at some length to a message relating to the Arrow lakes project which had been received from a Mrs. Heather Gates.

Mr. HERRIDGE: That is right.

Mr. TURNER: Would the hon. member indicate whether he is related in any way to Mrs. Heather Gates.

Mr. HERRIDGE: Yes. She is one of my daughters and, if I may say so, she is a very intelligent girl.

Mr. BYRNE: And, a favourite daughter, too.

The CHAIRMAN: Gentlemen, we have adjourned.

HOUSE OF COMMONS
Second Session—Twenty-sixth Parliament
1964

STANDING COMMITTEE
ON
EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE
No. 23

MONDAY, MAY 11, 1964
TUESDAY, MAY 12, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:
The Hon. E. D. Fulton, P.C., Q.C.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (<i>Okanagan-</i>	Leboe,
Byrne,	<i>Revelstoke</i>),	Macdonald,
Cadieux (<i>Terrebonne</i>),	Forest,	MacEwan,
Cameron (<i>Nanaimo-</i>	Gelber,	Martineau,
<i>Cowichan-The Islands</i>),	Groos,	Nielsen,
Cashin,	Haidasz,	Patterson,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Konantz (Mrs.)	Turner,
Dinsdale,	Langlois,	Willoughby—35.
Fairweather,	Laprise,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

MONDAY, May 11, 1964

(39)

The Standing Committee on External Affairs met at 4.00 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Mrs. Konantz and Messrs. Brewin, Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Dinsdale, Fairweather, Fleming (*Okanagan-Revelstoke*), Gelber, Haidasz, Herridge, Kindt, Leboe, Macdonald, MacEwan, Matheson, Nesbitt, Patterson, Pugh, Ryan, Turner, Willoughby (25).

In attendance: The Hon. E. D. Fulton; Mr. Gordon Robertson, Clerk of the Privy Council; Mr. Gordon McNabb, Water Resources Branch, Department of Northern Affairs and National Resources; Mr. A. E. Ritchie, Assistant Under-Secretary, Department of External Affairs.

The Chairman announced that correspondence has been received from Mr. Cliff Parker, International Union of Operating Engineers, Vancouver; Mr. John A. McNiven, Assistant Secretary, British Columbia Federation of Labour, Vancouver; The Hon. W. S. Lloyd, Regina, Sask.; Mr. E. B. Gates, President, The Gates of St. Leon Ltd., Nakusp, B.C.; Mr. F. J. Bartholomew, Vancouver; Mr. A. L. King, Secretary, Union of Mine, Mill and Smelter Workers, Vancouver, B.C.

The committee resumed consideration of the Columbia River Treaty and Protocol.

The Chairman introduced the witness, Mr. Fulton, who then read his brief, and apologized for not having completed it in time to forward copies for prior study by the members.

During the meeting the Vice-Chairman, Mr. Nesbitt, took the Chair.

Mr. Fulton was questioned.

The questioning continuing, at 6.00 p.m. the committee adjourned until 9.00 a.m., Tuesday, May 12, 1964.

TUESDAY, May 12, 1964

(40)

The Standing Committee on External Affairs met at 10.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Messrs. Brewin, Byrne, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Dinsdale, Fairweather, Fleming (*Okanagan-Revelstoke*), Forest, Gelber, Groos, Haidasz, Herridge, Kindt, Leboe, Macdonald, MacEwan, Matheson, Nesbitt, Patterson, Ryan, Turner, Willoughby (25).

In attendance: The Hon. E. D. Fulton; Mr. Gordon Robertson, Clerk of the Privy Council; Mr. Gordon McNabb, Water Resources Branch, Department of Northern Affairs and National Resources; Mr. A. E. Ritchie, Assistant Under-Secretary, Department of External Affairs; Mr. E. R. Olson, Department of Justice.

The Chairman announced that correspondence has been received from Mr. J. D. McDonald, Rossland, and Mr. R. M. Lumley, Arrow Park, British Columbia.

The committee resumed consideration of the Columbia River Treaty and Protocol.

The questioning of Mr. Fulton was resumed.

On a question of privilege, Mr. Byrne referred to an article by Mr. James Ripley in the *Toronto Star* and suggested that Mr. Ripley was in contempt of the committee and should be summoned to appear for questioning. The committee agreed to refer to the subcommittee on agenda and procedure.

The questioning continuing, at 12.25 p.m., the committee adjourned until 3.30 p.m. this day, on motion of Mr. Kindt.

AFTERNOON SITTING

(41)

The committee reconvened at 3.35 p.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Mrs. Konantz and Messrs. Brewin, Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Deachman, Dinsdale, Fairweather, Fleming (*Okanagan-Revelstoke*), Gelber, Groos, Haidasz, Herridge, Kindt, Klein, Leboe, Macdonald, MacEwan, Matheson, Nesbitt, Patterson, Pugh, Ryan, Turner, Willoughby (26).

In attendance: The same as at the morning sitting.

The committee resumed the questioning of the witness Mr. Fulton.

During the meeting, Mr. Brewin took the Chair, at the request of the Chairman. Later, the Vice-Chairman, Mr. Nesbitt, took the Chair.

Mr. Fulton tabled a written statement enlarging on information he had given earlier on the value of Canada's flood control revenue over the period of the Treaty. (*See Appendix P.*)

The questioning being completed, the Vice-Chairman thanked Mr. Fulton for appearing before the committee and for his lucid presentation.

At 5.55 p.m. the committee adjourned to Wednesday, May 13, 1964, at 9.00 a.m.

Dorothy F. Ballantine,
Clerk of the Committee

EVIDENCE

MONDAY, May 11, 1964.

The CHAIRMAN: Gentlemen, I beg to report that we have received correspondence since our last meeting from Cliff Parker, International Union of Operating Engineers, Vancouver; John A. McNiven, assistant secretary, B.C. Federation of Labour; The Hon. W. S. Lloyd, Regina, Saskatchewan; E. B. Gates, President, The Gates of St. Leon, Ltd., Nakusp, British Columbia; Mr. F. J. Bartholomew, Vancouver and A. L. King, Secretary, Union of Mine, Mill and Smelter Workers, Vancouver.

We have the pleasure of having as our witness today the Hon. E. D. Fulton, Q.C., P.C., Kamloops, British Columbia, who does not need any introduction to any member of this committee; we still feel he is one of us.

I will ask Mr. Fulton to simply present his brief at this time, and then I would ask you gentlemen to indicate what questions you have. I regret I will have to slip away at five o'clock.

Hon. E. D. FULTON, P.C., Q.C.: Mr. Chairman, hon. gentlemen, I appreciate your invitation to come and your welcome here. I have a presentation which I regret not to have had ready in time to reach the committee ten days in advance as you requested, but there were some facts in the submission on which I wanted to refresh my memory and I could not do so until I got here. The submission therefore was not entirely completed until today. It is now in mimeograph form, and through the kindness of the privy council office I was given the services of a stenographer and the mimeograph equipment. It is on its way over and it will be available for you in just a few minutes. Perhaps, subject to that, I might start now and read slowly the introductory portions. I would hope that by the time I reach the main portion it will be available to you.

Mr. PATTERSON: Could I suggest that Mr. Fulton be seated during his presentation of the brief, as other witnesses have been.

Mr. FULTON: Thank you very much.

In considering what should be included in my opening statement of this committee, I have of course had in mind what has been said about the treaty both generally in the intervening years since its preparation and signature, and in the evidence given to this committee. It has seemed to me in considering these matters that I could best contribute to an understanding of what the treaty does, why it takes the form that it does, and some of the things that it does not do, if I deal with it under specific headings. This presentation is accordingly divided into the following parts:

- I Introduction
- II The pattern of negotiations
- III The course of negotiations
- IV Treaty fact vs. fancy
- V The delay after signature.

I Introduction

I am glad to have this opportunity to give the background and context against which the Columbia river treaty should be studied, from the point of view of one who had the responsibility of negotiation. May I say at the outset that my view then was and now is that the treaty represents both an extremely advantageous arrangement for Canada, and a distinguished and practical example of international co-operation in the development of a project to the mutual advantage of the countries concerned.

I am also happy to be able to record my gratification that I was able to preside at the negotiation of a treaty for a great development which formed part of a program for national development in co-operation with the provinces which was the central policy upon which the government of which I was a member was elected in 1957. There are many landmarks now in existence or coming into existence all across the country which are the memorials to this policy: The Columbia river treaty development, the Pine Point railway, the South Saskatchewan dam, federal aid to the Beechwood power project, the construction of the maritime power grid with federal aid—all these are the visible and outward signs of the implementation of that program. To those of us coming from British Columbia the Columbia river development had of course a special place and it was with deep appreciation that I accepted the assignment as chairman of the Canadian negotiators.

There is another special reason why negotiation of the Columbia river treaty was and is of such significance. This is because—and I wish to stress this for the special attention of those who say we should scrap the treaty and “go it alone”—the treaty is a basic necessity to the realization of the full extent and potential of Canada’s rights and interests in the Columbia river. If we “go it alone” not only do we lose those rights and interests, but we would confer a vast unearned benefit on our competitors in the United States. Indeed, as I shall point out a little later, without the treaty it is I think certain that none of the great projects on the Canadian side would come into existence.

As chairman of the Canadian negotiators, on whom would rest the ultimate responsibility of recommending a draft treaty for the approval of the government of Canada, I felt it my responsibility at every stage to weigh the various proposals that emerged from our negotiating sessions on the basis of two fundamental questions: First, does the arrangement suggested represent net advantage to Canada? And second, does it represent advantage we could not achieve without this arrangement? Only if, in the considered view of the negotiators and our advisers, the answer to both questions was a positive yes, was I prepared to accept in principle the arrangement we had arrived at, and to proceed on that basis to the next stage in the negotiating sessions. It was also on the basis of this approach that I made my reports and recommendations to the policy liaison committee. It was on the basis of positive and affirmative answers to both these questions that I made my final recommendation to the government of Canada of which I was then a member.

I wish to record my appreciation to my colleagues in that government for all the assistance and support I received in the course of the negotiations. The government was of course kept fully informed throughout the whole proceedings, but I appreciate also the confidence displayed in the conduct of negotiations by way of the ready and unanimous acceptance of the final proposals which emerged.

I wish also to record my appreciation of the work, support and co-operation of the other members of the negotiating team; of whom the other two federal representatives I am pleased and honoured to have here with me today of the way in which the technical advisory groups of both Canada and British Columbia carried out their work in preparing the technical data and processing

the technical aspects of negotiating proposals and advising us on their implications. This of course includes the technical advisory staff and the then chairman of the Canadian section of the International Joint Commission who, as I will point out in somewhat greater detail a little later, were closely associated with the negotiations and consulted at every stage throughout.

It is not my intention in the course of this presentation to rehearse the merits of the policy differences which developed, subsequent to the signing of the treaty, with the government of British Columbia over the course that should be followed in disposing of the power benefits secured by the treaty—that is, whether they should be retained for use at home or sold outright in the United States. My position in that matter is clear and unchanged. But it seems to me that, whether I agree with it or not, that matter is now settled and that it is on the basis of that settlement that you are examining the treaty. I am here to examine the treaty with you, not to re-argue the course I felt should have been followed with respect to the benefits it secures.

I shall, in the concluding portion of this presentation, give you a factual summary of some of the history of this controversy, because I believe that the treaty may not be seen in its full perspective without the information that this summary of the facts will provide. But it is not my purpose in the main portion of this paper, or even in the concluding portion, to argue the merits of my policy against that of the British Columbia government. I engaged in that argument during a provincial election campaign. My views on the merits remain unchanged, but they did not prevail. Hence, a different policy is now in effect. I regret that this is so, but as one who believes in the principle and the results of the elective system of choosing our governments, I must accept the fact of that decision.

Back in British Columbia, my responsibility is therefore, as I see it, to consider what it is that we can best do for the future on the basis of the position as it is today, not to lament the position as it might have been. Here, in this committee, I believe my responsibility is to examine and explain the treaty, as we negotiated it, and to explain its benefits and its disadvantages, its strengths and its weaknesses, not to indulge in recrimination over a policy difference which has been rehearsed fully elsewhere.

Let me repeat, however, that while I cannot be enthusiastic over a policy as to the disposal of benefits which confers on a competitor advantages which we need for ourselves, I was and am an enthusiastic proponent of the treaty itself which secures those benefits.

II The Pattern of Negotiations

The Organization of Discussion

From the outset it was recognized that two principles should be followed in organizing our work: First, that there must be the closest cooperation and agreement with the government of British Columbia throughout, and second that there must be the most meticulous care to check and recheck every stage with the technical, economic and engineering advisers available to both governments.

Accordingly, some time before negotiations of the treaty itself commenced, there was set up a series of committees, and there was established the basis of our procedure. There was first the policy liaison committee composed of representatives of the governments of Canada and of British Columbia, assisted by their respective technical advisers. This committee formulated the agreed policy which the negotiating team carried into the negotiating sessions as the Canadian position.

There was next a technical liaison committee, made up of the expert advisers already referred to, sitting without political representatives. It was the

responsibility of this committee to formulate recommendations for consideration by the policy committee on the basis of the technical considerations as to the initial position to be taken, and then, as negotiations proceeded, to analyse an report on the technical, engineering and economic considerations involved. It was on the basis of these reports that the policy committee decided the Canadian position to be taken at the next stage of negotiations.

There was also, at the federal level, a cabinet committee on the Columbia river, chaired by my colleague the Hon. Alvin Hamilton, again assisted by the technical advisers who also later became members of the technical liaison committee. This cabinet committee was set up in September 1957 as an early act of our government to ensure the implementation of this aspect of its national development policy, as well as to serve as the body to which both the federal members of the policy liaison committee and I, as chairman of the negotiating team, should later take matters involving federal policy decisions. These decisions then formed the basis of the position of the federal government representatives at the various policy meetings.

And finally there were the Canadian technical advisers who accompanied the negotiators to every negotiating meeting. These were both Canadian and British Columbia officials, all members of the technical liaison committee, who were present throughout the negotiating discussions—they were there in the room—and who were prompt to weigh, consider and advise on the implications of positions put forward by the other side and their effect on, and conformity or otherwise to, positions and policies that it had been decided we as Canadian negotiators should strive to have accepted.

The pattern of negotiation was prepared to take full advantage of this structure and to accord with the basic principles of negotiations set out above. The full negotiating team—which included a representative of British Columbia—attended all meetings of the policy liaison committee. The policy liaison committee was advised by the committee of technical experts (the technical liaison committee), who also attended all the policy committee meetings. The negotiators took their position at the negotiating sessions on the basis of the decisions arrived at at the meetings of the policy committee which immediately preceded those sessions. At the negotiating sessions we were advised and assisted by the same technical advisers. After the negotiating session, we reported what progress we had been able to make, what obstacles we had met, what positions the Americans had taken, what compromises and concessions on both sides had been considered.

This report would be made by me as chairman of the negotiators to the policy liaison committee. It was considered with the technical advisers, with the negotiators present, at the next meeting. Meantime, the technical liaison committee had been meeting with and receiving reports from the technical advisers who had been at the negotiating session, considering these reports, analysing the technical implications and formulating their recommendations. The policy liaison committee then met with the advisers and the negotiators present, and the implications of the negotiators' report and of the technical analysis were thrashed out on the basis of an agreed agenda. These meetings usually lasted two days—there were at least one and sometimes two meetings between every negotiating session—and at every one the concluding phase was a full discussion leading to a decision as to the position to be taken at the next negotiating session.

During the same period, the federal members of the negotiating team with myself as chairman, reported to the cabinet committee, and there were full discussions, again with our technical advisers present, as to the essentials of the position the Federal representatives should take in the policy committee.

Then, Mr. Chairman, as to the composition of the various teams and committees, I think enough has been said here and elsewhere on various occasions to establish their representative nature and their high technical qualifications. Early in the proceedings, for instance, at the very valuable suggestion of General McNaughton, we asked for and secured, as one of the technical advisers to the policy committee and to the negotiators, the services of Mr. Matthew Ward, director of planning, with Ontario hydro. The practical experience, breadth of knowledge and impartial approach of this officer of the largest hydro operating entity in Canada proved to be of the greatest benefit to the technical liaison committee, the policy committee; and his adviser to the negotiators at negotiating sessions was also of great benefit.

I see the text of my brief has just arrived, so perhaps it would be convenient if I were to pause here to say that I am now at the end of the second paragraph on page nine. There are one or two quite minor typographical errors and one or two quite minor errors in the text. I will try to emphasize the correct form as I go through.

One other point requires emphasis. That is the intimate association of General McNaughton and the staff of the Canadian section of the International Joint Commission with the processes of policy formulation and negotiation throughout. General McNaughton was at the outset appointed a member of the policy liaison committee, and was asked to designate members of his staff to serve on this and the other advisory committees. This was done. General McNaughton was represented on the technical liaison committee. He was present at eleven of the thirteen meetings of the policy liaison committee, and was represented at the other two. He and his staff also attended and advised at the meetings of the cabinet committee; that committee had 33 meetings, General McNaughton was present at 26. He was also represented at all meetings of the international work group. He and the federal members of the negotiating team had a number of lengthy personal discussions as well. That is literally correct. At every stage the views of General McNaughton and the Canadian section, International Joint Commission, were obtained; and at no stage did they or General McNaughton withdraw or refrain from the discussions.

The whole operation was carried on on an intensive and thorough basis. Every aspect of the problems coming before us received exhaustive and detailed analysis and study. There was, generally speaking, a stimulating sense of urgency shared, arising in large part from a realization of the potential that depended on a successful outcome, so that although the work was intensive, it was carried out with zeal and thoroughness.

While I lay no claim to technical qualifications myself, the Canadian negotiating team which I led was extremely well served by a host of technical advisers; and any suggestion that the Canadian position was taken on the basis of inadequate assessment or insufficient advice—or that the Canadian technicians were no match for their American counterparts—is simply not true.

Mr. BREWIN: What loyal enthusiasm!

Mr. Fulton: Continue.

III—The Course of Negotiations

The initial Canadian negotiating position was based on a statement outlining the maximum storages that we were prepared to make available in Canada and their locations, to which, when operative, we would expect to have assigned a first-added position. We put forward a proposal that in determining what specific projects should be included and assigned first-added position,

the agreed principles, and especially that of benefit-cost ratio, should be applied to the offer as a package, and that all the projects in the package should be accepted if they had a better result than any project or package the other side could put forward. The Americans accepted this as a basis for initial discussion.

On this basis it was agreed that the Canadian package first put forward, comprising High Arrow, Mica creek and the Dorr-Bull river-Luxor complex, met the test and should be further considered. It is significant to note that High Arrow was included in the Canadian proposal from the outset. The fact is that on the basis of the principles agreed to by the International Joint Commission, and accepted by the policy liaison committee as a basis for negotiation, and especially on the principle of the benefit-cost ratio, Arrow is far and away the most economic project on the river. As a project in a purely Canadian system without the treaty, Arrow has been in the past, and probably would be now, considered as undesirable; but as part of a package in the treaty with benefits secured and with the other projects sharing from the outset in a first-added position, that is with their positions assured before or at the same time that benefits and patterns of operation are worked out for Arrow, every argument led to the conclusion that it should be included. This was the constantly reiterated advice of the technical experts, it was accepted and decided upon by the policy liaison committee, and so Arrow was put forward in the package by the Canadian negotiating team.

The decision to include Arrow, while it was recognized as one that would create certain political problems, turned out to be of great advantage when it came to the question of reconciliation within the plan of operation of a plan which would create maximum extra power at the downstream plants on the one hand and yet permit freedom to operate for the creation of maximum at-site power at Mica creek and later, at Downie creek and Revelstoke canyon, on the other hand. While it is true that there were 11 million (now 12 million) acre feet of usable storage in the Mica creek reservoir, it was found feasible to commit only 7 million of this for operation under the treaty plan. The presence of Arrow makes it possible to operate this water—well over half the actual storage and practically all the annual renewable storage—to produce the maximum power at site at our power dams, then to re-regulate it at Arrow so that it can be used again further downstream for maximum production of downstream power.

It is difficult to say in retrospect and at this stage whether this package would in the long run have been agreed to as the basis for a treaty. The United States appeared to be attaching some pretty stiff conditions to its acceptance. But in any event, while the matter was still in the "basis of negotiation" stage, the British Columbia government decided that the Dorr-Bull river-Luxor proposal, with the vast area of flooding it involved, was not acceptable. They maintained this position at several policy committee meetings at which it was vigorously discussed.

Accordingly the task became, from the point of view of the Canadian negotiators, to maintain a package which would still be given first-added position and produce a sufficient return in terms of downstream benefits to represent net advantage to Canada point number one; to prevent the Libby dam (which has to be permitted if the flood protection of Dorr-Bull river-Luxor is eliminated) from occupying a position which would detract from the benefits attributed to the Canadian storages, while at the same time preserving the benefits from Libby in Canada; and to maintain for Canada the rights of diversion of Kootenay into the Columbia if ultimately desired in order to increase the output of power from the Canadian plants on the Columbia.

In all these objectives the Canadian negotiators were successful. The treaty is of great advantage to Canada in terms of the large quantity of low cost power and substantial flood control payment it produces. Second, Libby does not detract from or share with our storages, which are all in first-added position, while we keep in Canada the whole of the very substantial downstream power benefits Libby confers on us whereas the United States has to share with us the downstream benefits from our storage; and third, we have preserved the right to divert the Kootenay to virtually the full extent if we wish to do so during and after the term of the treaty.

In short, the present treaty is far from a "second best" choice. It is, on the basis on which it was negotiated, a completely fair alternative. It produces some 10% less marketable power at site in Canada, but it produces it at more than 10% lower cost per unit and it produces for Canada more downstream benefit power while retaining full flexibility of operations for Mica, than would be possible under the plan which is generally put forward by critics of the treaty as being the one that should have been insisted on by Canada. The treaty plan is a more flexible plan than a plan including the east Kootenay diversion at the outset, in that the treaty plan permits the Kootenay diversion to be carried out by stages, more economically, if desired.

Finally, and I think perhaps the most important, and this is the real nub of the situation, what the treaty plan does is to make a Columbia river development possible. After all, it became perfectly clear that if a sequence was insisted upon that included the major Kootenay diversion at the outset, there would not be any Columbia River Treaty. Mica creek by itself was investigated and established to be uneconomic as an isolated project; and its benefit cost ratio on that basis was such that its benefits would have had to be pooled with Libby to its further detriment.

To repeat, then, what the Columbia River Treaty sequence does is to make a Columbia river development possible with all its benefits for Canada. At this point may I say it is in a sense unfortunate that the treaty by its very nature makes reference only to the three projects specially included. I say this because in the concept of those on the Canadian side who brought it into being, its basic purpose was not only to get maximum benefits and first added position for our storage dams, but to get them in order to provide the springboard for the subsequent great developments of power producers on the Canadian side. This was the whole subject of our negotiations as we negotiated the treaty. The inclusion of Mica creek in the package was what I might call the keystone of the arch; on the basis provided by this arch were to be solidly founded the other projects not mentioned in the treaty—of course they were not mentioned because it was not necessary to negotiate with the United States about them. But with respect to Mica creek, Downie creek, Revelstoke canyon, the additional capacity on the West Kootenay, the Canal Plant, Murphy creek—the present treaty makes possible all these and the tremendous potential development in Canada they embrace. Without it, they would never come into existence.

By October of 1960, the negotiations had proceeded to the point where these factors had become clear, and the Canadian and American negotiators were both prepared to recommend that a treaty be worked out in detail based upon the principles which in fact are embodied in the treaty as it now exists. A progress report, embodying these results of our discussions, was accordingly prepared and presented to the three governments. In it we recommended that we be authorized and instructed to proceed with the preparation of a draft treaty in final form based on that report. The report and recommendation were accepted by all three governments.

The progress report was released, and its contents were widely discussed here and in the United States. There is no question but that it makes perfectly clear the basis upon which the treaty was to be drawn, and the projects that would be included and, necessarily, those that would be omitted.

The progress report was made on September 28, 1960, and press releases were issued in October. There was discussion of it from then until the treaty was concluded.

None of those associated with the negotiations at any time, at this stage or until the conclusion of negotiations, indicated that they were opposed to the continuation of negotiations on that basis.

Negotiations continued in accordance with the pattern outlined above, until, on January 8, 1961, as a result of the concerted and conscientious efforts of negotiators, advisers and draftsmen, the draft of a treaty in final form was produced which the negotiators unanimously agreed to recommend to their respective governments.

Finally, however, there remained the responsibility of the actual recommendation.

I accepted then, and still accept, full and sole responsibility for the recommendation that I made to the government of Canada. I felt, however, that the negotiators and their advisers had worked together as a team, I wanted to be certain that we went into the final and very important stage—the working out of the details necessary before ratification—still as a team united behind the treaty.

Accordingly I called in the federal members of the negotiating team, and the federal advisers. Some of the senior provincial advisers were also present. I made clear to them that I was not asking them to relieve me of my responsibility.

I was not asking them to say, "I want you to make this recommendation", or make up my mind for me. No; I said that I was then and there prepared to assume responsibility for the recommendation of the treaty to my government, and that I did so on the basis of my view of the answers to the two questions I have previously posed. These answers, as I then believed and still maintain are that the treaty confers a substantial net advantage upon Canada, and that this advantage could not be achieved without the treaty.

I wished simply to ensure that I was correct in my understanding that this was also the view of all the other negotiators and the advisers and that they also felt the treaty should be recommended. All agreed. General McNaughton said that while he was opposed to certain of the physical aspects of the treaty, he did not oppose the recommendation to cabinet.

He then said words to the effect that he must maintain his freedom of expression for the future.

IV Treaty Fact vs. Fancy

The Columbia River Treaty has become the subject of heated and sometimes acrimonious controversy. I refer here not to the discussions with British Columbia surrounding the policy regarding the disposal of the benefits it secures, but to some of the things which are said with respect to the basis of the treaty itself.

I do not complain of it, but I think it is important to record my impression that the heat and acrimony certainly on occasion have led otherwise responsible and sensible persons into statements which simply do not stand up on the basis of facts. I refer here not to the discussions with British Columbia, but rather some of the things which are said with regard to the basis of the treaty itself.

I should like to deal with the major criticisms.

A. That We have Parted in Perpetuity with the Right to Divert

The incredible thing here—as with the other criticisms with which I shall deal—is that those who make them show a blithe disregard for the suecific black and white provisions of the treaty—even after their attention has been drawn to them. Or at most they make a grudging admission—“oh yes—you have safeguarded that right specifically in the treaty, but of course, because of the treaty, we will never be able to exercise.” I invite you to look at the facts with respect to the thee areas where this type of criticism is most often asserted.

1. General—Alleged loss of the right to divert to the prairies, or for irrigation and domestic use there or elsewhere.

The fact is that the only restriction is with respect to diversion for power purposes, and then only for the duration of the treaty. (Surely it is not unreasonable, when you are making a treaty providing for the use of water in one specified way for the creation and sharing of power, to accept a restriction that it shall not be used or diverted in another way for the creation of power during that period. We were as much concerned to get this undertaking from the Americans as they from us.) But that has nothing to do with power. But diversion for consumptive use is specifically excepted from the restriction, which means that diversion for consumptive use even during the term of the treaty can be as freely and fully exercised as the present law permits; and consumptive use is specifically defined to include irrigation and domestic purposes.

Yet you still hear it said—and I suppose this will continue—that we have given the Americans control over our right to divert.

2. The Kootenay River—Alleged loss of right to divert to the Columbia for power purposes.

The fact is that the right to divert the Kootenay into the Columbia is specifically recognized by the treaty. The only restriction is that it must be exercised within certain time limits. These limits are broad, and within them, the right is absolute, even though Libby may have been built. Indeed, I submit the treaty could be said to make the right more certain than it is under present law in the absence of the treaty. And the right to make the final diversion is so framed as to continue even though the other treaty arrangements have been terminated.

An argument is made that we would never exercise that right once Libby has been built—that pressures against it would be too great. This is an entirely hypothetical assumption which does not rest on fact, but only on a guess as to what attitudes will be taken at some time in the future. What is not hypothetical about this treaty, but factual, is that the right is enunciated in as binding and unequivocal terms as it is possible to devise.

Certainly in the negotiations, the Americans made it clear that they regarded the right recognized by the treaty to divert the Kootenay into the Columbia as unqualified. What they said was, in effect, that after 60 years, Libby will have been fully amortized; by that time thermal and nuclear sources of power will be economic so it will not be a mortal blow for Canada to take away that amount of water from Libby. Therefore they were prepared now to write into the treaty at our request specific recognition of our right to do so, even if Libby shall have been built. The only qualification they asked was that we should accept a time limit within which we should exercise our right, rather than leaving it hanging over their heads indefinitely.

I would hope that Canadians will not be less ready to assert and examine their rights than the Americans are to concede them. Yet you still hear it said that by the treaty we surrender our right to make the Kootenay diversion. I find support for the argument I have advanced in respect of the United States position in what General Itschner, the then chief of the corps of army engineers and an American negotiator of the treaty, said. This is what General

Itschner said when he was giving his evidence before the committee on foreign relations of the United States Senate when they were considering ratification:

The average annual flow of the Kootenai river at Libby dam site is about 10,000 cubic feet per second. Applying the flow limitations cited in the paragraph above,—

In which he referred to the Canadian right to divert.

—annual flow at Libby dam site, after the 60th year, could be reduced from 10,000 cubic feet per second to 3,200 cubic feet per second; after the 80th year, it could be reduced to 1,700 cubic feet per second. Although the energy generation would be reduced substantially under these conditions, the project investment would be amortized before these conditions would be experienced. The project, however, would still produce substantial amounts of power economically and continue to provide its full measure of flood protection.

Now, that is the United States view.

Mr. MACDONALD: Pardon me for interrupting, Mr. Fulton, but I wonder if you would give the page number of the hearings to which you make reference.

Mr. FULTON: Yes. I am reading from page 57 of the hearing before the committee on foreign relations, United States Senate, March 8, 1961.

As I say, that is the United States view in respect of the Libby situation which substantiates what I said, that the Americans were not hesitant to give us this right or to recognize this right; it was written into the treaty in absolute and unequivocal terms. I am satisfied that if Canadians of the future, in examining this problem, come to the conclusion it is to our advantage to make the diversion, then they will not be less ready to make it and to exercise the right than the Americans were to concede it.

I come now to the third criticism in this area;

3. Alleged Loss of Right To Divert Columbia To Fraser For Power Purposes.

It is true that the right to divert the Columbia to the Fraser for power purposes, as that right may exist under the boundary waters treaty, is suspended for the duration of the Columbia river treaty. But the reason is, again, that we were negotiating a treaty under which both sides accept an obligation to use water in certain ways and for a certain term and both have the right to a share of the extra power created as a result of such use. When entering into an arrangement based on mutual obligations, it is hardly to be expected that one side should demand and be accorded the right unilaterally to terminate its obligations and use the water in some other way. This was a case where we had to balance the advantage of the assured source of power from the Columbia river treaty for the duration of its term, against the possible loss—and, it is only a hypothetical one—that might result from accepting a restriction on power diversion to the Fraser for that same period. The opinion of our advisers was overwhelming that the substantial net advantage lay with the treaty use for the period so limited.

The important thing is that we fought for, and won—against strenuous United States opposition—a reversion to the position of the law as it is under the boundary waters treaty upon the termination of the Columbia river treaty. At that time, we will be free to weigh the factors again—including the question of whether the fisheries problem has been solved—and come to a conclusion to divert if such a development is warranted.

Yet you still hear some condemn the treaty because, they say, under it we have lost all right to divert the Columbia to the Fraser.

B. Operating Plans

Allegation that the operating plans, and therefore the use of the Canadian storages, will be under the domination of and for the benefit of the United States, regardless of Canada's interest.

This criticism appears entirely to overlook the fact that the treaty provides, first, that the principle upon which the operating plans will be based will be to maximize power output over the entire system, including Canadian plants when constructed as well as downstream plants; and secondly, that the operating plans are to be prepared by and agreed to jointly by the operating entities in the two countries. The criticism therefore seems to assume either that Canada will never construct power-producing plants of its own on the Columbia river (whereas, in our approach, the treaty was specifically designed to provide the base upon which this would be done—although until we do have such power-producing plants, there can surely be no objection to maximizing power in the downstream plants since under the treaty we were to get one-half of that extra power); or alternatively, that the operating entity on the Canadian side will be composed of a poor benighted bunch of muddle-headed amateurs who will not be able to stand up against the "slick Americans". Neither assumption is acceptable or correct.

In fact, the treaty and annexes make clear that both sides have a mutual interest and an equal right in the preparation and operation of the plans.

C. Post-Treaty Flood Control Provisions

Allegation that these constitute a perpetual subordination of Canadian to American interests, for which there is no compensation.

This allegation is based on the fact that the treaty does provide that, even after the end of its term, and so long as Columbia river waters in their natural channel constitute a potential flood danger below the border, the United States shall have the right to call upon Canada to operate its storages so as to prevent or reduce actual flood damage. It is true that these calls may be made on a basis that does not provide for a cash payment for the flood damage thus prevented.

But there are two important considerations which are overlooked in this criticism. The first is that the \$64.5 million flood control payment to be received immediately upon commencement of operation, represents the full present capitalized value of the annual payments that would be made for flood control over the 60 year term of the treaty, if the annual payment method had been selected. We will, therefore, have been paid in full, according to the calculation based on the I.J.C. principles, for the flood damage which we prevented during the term of the treaty. Furthermore, the dams, involved in accordance with the usual accounting practice, will have been fully amortized over that period.

Second, the only possible cost to Canada of operating its storages at that time so as to contribute to flood prevention when requested, is the administrative cost of the personnel and plant involved, plus any loss in power output at Canadian dams which results from the flood-control operation. The treaty provision in question provides that Canada shall be compensated in full—in cash or in kind at our option—for such cost and loss. In other words, this is a service, in the interest of the lives and property of our neighbours, which we may be requested to provide, and have agreed in advance to furnish, but on a basis on which there will be absolutely no cost or loss to us; and it is provided by the treaty that with respect to which the portion of their cost attributable to flood control purposes has been fully met and amortized by the cash payment in advance. I find it difficult to understand how this arrangement, completely devoid

of any real burden to Canada, can be described in the harsh terms that have been used with respect to it.

I come now Mr. Chairman to the final portion of this presentation.

V. The Delay After Signature

The delay in ratification, the delay in agreement with British Columbia as to the details of operation, and the consequent delay in commencement of construction, are in my view attributable entirely to the difference which developed between the then government of Canada and the government of British Columbia subsequent to signing of the treaty on any agreed federal or provincial basis, as to the disposition which should be made of the downstream power benefits secured for Canada and British Columbia by the treaty. Since the facts of this controversy do form part of the background of the development, some few words as to that controversy will serve to illuminate the background.

One point that should be emphasized is that this controversy developed only after the treaty had been signed. Throughout the negotiations it was a guiding principle, laid down by the joint policy liaison committee, that the Canadian negotiators should insist not only that Canada is entitled to one-half the extra power generated downstream as the result of the operation of Canadian storages, but also that we are entitled to its delivery and return free of charge at a point on the border for use in this country. This position was advanced and accepted early in the negotiations, all subsequent negotiations proceeded on that basis, and the language of the treaty itself clearly reflects this principle.

It was not until after the treaty was signed that any real question as to the policy was raised. Then, not only was the question raised by the government of British Columbia, but their position was completely reversed. It became apparent that, instead of using Columbia river power including downstream power as the next major source of hydro power to supply British Columbia's requirements, the decision had been taken in Victoria to give priority to the Peace river development for this purpose. This decision, hitherto concealed, of course meant that the domestic British Columbia requirements would be physically met by Peace river power (although at higher cost) and that our share of Columbia power, if it was to be developed, must therefore be sold en bloc in the United States.

This complete reversal, so soon after the treaty was signed, of course created

This complete reversal so soon after the treaty was signed, of course created a major policy difference between the governments of Canada and British Columbia and was the major if not the sole factor responsible for the delay in implementing the treaty. There have been some suggestions that this possibility should have been foreseen and should have been resolved earlier, or alternatively that signature of the treaty should have been delayed so as to avoid the embarrassment that resulted from this post-signature delay.

Every effort was made by the federal government to ensure that there was no misunderstanding on this point, and to ensure that once signed, there would be no obstacles or disagreement to early implementation. Thus towards the end of negotiations, when the British Columbia government asked its energy board to carry out a comparative cost study of the Peace and Columbia river developments, the question was specifically raised with them in the policy liaison committee as to what implications this had with respect to the treaty and what position the Canadian negotiators should take when the United States team asked about it—as they were bound to do.

For by that stage our negotiations had proceeded to the point where the Progress Report had been presented, containing as it did an outline of the

principles and basic provisions that we recommended should constitute the framework of the treaty; explicit in this was the concept that Canada's entitlement should be returned for use primarily in Canada. This progress report had been approved by all three governments concerned, and we had been instructed to conclude our negotiations on the foundation it formed. The question therefore of whether British Columbia intended to go ahead with the Columbia on the basis of the return and use of Columbia river power, as agreed, or whether it intended to give priority to the Peace, was a critical one in the final stages of negotiations.

When this question was raised, the clearest and most unequivocal assurance was given that it was the intention of the British Columbia government to proceed with and implement the Columbia river development in accord with the treaty then being negotiated, and that the studies referred to were solely for the purpose of speeding up the preliminaries to ratification. This assurance was given on January 3 and 4, 1961; it was conveyed accordingly to the United States negotiators at the final negotiating session. As a result, the negotiations were completed within one week after the assurance was given, and the treaty was accepted by the government of British Columbia within eight days after the assurance was given—hardly sufficient time for them to have forgotten or misunderstood the effect of their assurance.

This assurance forms part of the formal record of the discussions between the representatives of Canada and of British Columbia. Yet the question has been raised—and raised recently in the House of Commons—why, in view of the delay and embarrassment occasioned by the reversal of the position, the treaty was actually signed in the absence of an ironclad written agreement with the government of the province.

Well, agreements can take a number of different forms. It is hard to believe that the written and agreed record of discussions extending for well over a year, resulting in a written treaty agreed to by the representatives of the federal and provincial governments concerned about it, which emerges from negotiations in which they were jointly represented, constitutes less than a formal agreement. But to make assurance doubly sure, I initiated an exchange of letters between myself as Chairman of the negotiating team, and the Minister of Lands and Forests of British Columbia as the principal representative of the British Columbia government in the Columbia river discussions, which placed the question of agreement beyond all possibility of doubt.

These letters have been tabled in the House of Commons. They show that on January 9, 1961, I wrote to Mr. Williston enclosing copy of the draft treaty as submitted by the negotiators and advising him that the government of Canada would be considering it during that week and that if approved would authorize its signature in Washington on January 16; and that in doing so, would deal with it on the basis that the government of British Columbia was in accord with its terms, unless I heard from him to the contrary. On January 12 I had a reply from Mr. Williston thanking me for my letter, referring to some points on which it had already been agreed that further studies would be required prior to ratification, but expressing not the slightest reservation, objection or disagreement as to the basis of negotiation, the terms of the treaty, or the proposal to sign it. It was approved by the government of Canada on that basis, and was signed in Washington on that basis on January 17, 1961 by the Prime Minister of Canada and the President of the United States.

The change in the position of the British Columbia government which became evident about a month after the treaty was signed, involved a surprising contortion. Its position moved from an insistence on marketing some

of the downstream benefit power in the United States while it might be a surplus to our requirements—a position which was accepted throughout, and indeed insisted upon by the Canadian negotiators with their United States counterparts and agreed to by them, to a refusal—after the treaty was signed—to proceed with any development at all unless the whole entitlement was sold in the United States and paid for in advance on a basis which would pay for the three treaty dams “at no cost” to British Columbia. As I say, I am not here debating the merits of the various positions. I merely record the fact to establish the nature and extent of the reversal of the position—a reversal taking place only after the treaty was signed—in order to place in context the delay in ratification and implementation.

Perhaps I may be permitted to say that this situation, after every effort had been made to resolve it by negotiation and discussion, but without success was one which, as I appreciated it, was bound to involve me in a more direct effort to resolve it by action in the political field. A treaty had been signed by the Prime Minister of Canada and the President of the United States. It had been signed in good faith, as the outcome of strenuous and honourable negotiations. Its implementation was now being prevented, as I saw it, because the British Columbia Government—a party to the negotiations—had reversed its position on a matter which had been specifically examined and accepted in the course of those negotiations, and with respect to which, on the basis of its assurance, firm assurances had accordingly been conveyed to the American negotiators.

This was an issue then, I felt, after all the effort had been made to try to sort our way out of this dilemma by negotiations and discussions and had failed, that had to be carried to the people of British Columbia in the only manner that gave any possibility of effective action to change the situation. The government of British Columbia had become adamant—I state it as a fact—in its position that it would not proceed except on a basis that was contrary to the previously agreed basis. Holding the views that I did, and having negotiated the treaty, I felt there was a strong obligation upon me to intervene directly and openly. This played an important part in the decision I made in November of 1962 to enter the field of provincial politics.

The remainder is history. I took the issue to the people of our province on the basis that the power policy being followed there was wrong and involved a reversal of a previously agreed position forming the basis of the treaty. The outcome was decided on September 30 last. I accept that outcome but while I regret, naturally, that my views did not prevail, I do not regret the decision to take the issue to the people of my province for the purpose of giving them an opportunity to examine the alternatives and bring in their verdict.

Mr. Chairman and gentlemen, you as members of parliament will, I think agree that that is what we are in politics for, to lay the alternatives before the people for their verdict and then to accept the verdict even if it should be one that personally runs counter to our own views.

The CHAIRMAN: Thank you very much, Mr. Fulton.

The first one on my list to ask questions of the witness is Mr. Davis.

Mr. BREWIN: Mr. Chairman, I wonder if before we go on we could decide on the future progress of the committee. At the moment is it the intention to sit this evening?

The CHAIRMAN: That, of course, is up to the wishes of the committee, but Mr. Fulton will be with us tomorrow and I understand that a number of members of this committee have engagements this evening.

Mr. BYRNE: I wanted to ask the witness a few questions, but this very interesting presentation is new to me, and may be new to most of the members of the committee, and I would appreciate the opportunity of reading it over and thinking about it a little bit before I do put questions.

The CHAIRMAN: As I say, Mr. Fulton will be available to the committee tomorrow, and I imagine there will be a number of members of this committee who would like to examine this brief rather carefully. I thought we could have one or two members ask questions before the end of this meeting.

Mr. BREWIN: Mr. Chairman, would you put me on the list but I will not try to exercise any rights until tomorrow?

The CHAIRMAN: Certainly. I understand it is agreeable to members of the committee that we shall meet tomorrow at 10 o'clock. In the meantime Mr. Davis has a question to put to Mr. Fulton.

Mr. DAVIS: I would like to ask Mr. Fulton to enlarge on one of his comments. In effect he said, and I think these were his words, that none of the major developments on the upper Columbia in Canada would go ahead without the treaty. Conversely, I think he also implied that were there no treaty, the United States would automatically fall heir to a number of major benefits. Could you enlarge on either or both of these propositions?

Mr. FULTON: Yes, I will endeavour to do so. The major power producer on the Columbia river in Canada is Mica creek. I said in the course of my presentation—I do not know whether it is in the text or whether I interpolated it, but it was certainly very much a part of our approach—that the key object of the Canadian negotiating position was to get Mica creek as part of the package so that Mica creek, along with the other subsequent developments, might receive, what I may call perhaps for want of a better term, the stimulus of a substantial benefit which the package earned in terms of cash for flood control payments and low cost power benefits, because, according to the advice that we received, without such a stimulus, without such a subsidy—and I am prepared to call it that—Mica by itself as a purely Canadian project is uneconomical. It produces power at such a high cost, used as a power generator alone without having attributed to it any downstream benefits, that it would not be economic to construct it at the present time. Therefore, from that point of view, it was necessary to have the treaty, with the benefits it secured, as a means of ensuring the construction of Mica creek, which would then be there initially as a storage dam but available to be machined at comparatively small extra cost to become one of the lowest cost power producers in Canada for Canada.

The Arrow dam is not a power producer, or not primarily. There is a body of advisers which consists of some of the experts, who tell us that some of the newer types of turbine can be operated at high efficiency with a low head. Arrow may become an appreciable but not a major producer of power as well as a storer for power, but Arrow is primarily a storer for power, a regulator and a re-regulator. As such it is of interest primarily, if not exclusively, as a very substantial earner of benefits by way of the flood control prevention attributed to it and the extra power created downstream in the United States plants as a result of the regulation of the water that it provides. However, neither of those factors produces any results for us unless there is a treaty, because it is only under the treaty that we establish our right to obtain the benefits, in terms of the return of our share of downstream extra power, and our payment for flood control benefits.

Both these reasons can be advanced in support of the statement that without the treaty not only will we not have an economic power development on our side of the Columbia river, but we will confer very substantial advantages on the United States for which we would receive no return.

Mr. DAVIS: To repeat, then, in your view, without a treaty we would not have Mica creek built for purely Canadian use within the next decade or so?

Mr. FULTON: That is my view, yes. In fact, I would go further and say that on the basis of what I recall of the economic advice, I doubt very much whether Mica, purely as a Canadian project without a treaty, would ever be economic.

Mr. DAVIS: Then Mica is unlikely to be built for some time without a treaty?

Mr. FULTON: Yes.

Mr. DAVIS: Therefore the other sites, Revelstoke and Downie creek—

Mr. FULTON: Will also fall, yes.

Mr. DAVIS: They are the substantial on site producers. This is your point. The major power producers will not be built for some time.

Mr. FULTON: They will not be built for some time, if ever, without a treaty.

Mr. DAVIS: Assume they were built at some later date—say a decade or two hence—the regulation they set up would confer a benefit, an unrequited benefit?

Mr. FULTON: Yes, an unrequited benefit to the United States. One can never be certain of this, but the strong impression of all of us associated with the negotiations at that time was that in 15 years, say, from now, the United States would not be interested in negotiating a treaty which involved return to Canada of extra downstream power and payment for flood control, because within that period they would have had to provide their own plants and projects for those purposes and, having done so, they would not then be interested in negotiating a treaty with us which paid us for benefits which had become much less significant to them. For that reason too we concluded—and I say it is a fact—that unless we had a treaty now, unless we had negotiated it at about the time we did and upon the basis on which we did, we would have had no major development of the Columbia river in Canada at all.

Mr. MACDONALD: May I ask a supplementary question of Mr. Fulton?

The CHAIRMAN: Mr. Macdonald.

Mr. MACDONALD: Did the thought also occur to you at the time that if in 15 years' time the United States had put in their downstream development we might be faced with claims under article II of the Boundary Waters Treaty for any developments we might put in, even if the water still did go down the river? Were you concerned about vested rights?

Mr. FULTON: Yes, but I think that would be a matter rather of degree than principle because they have a number of substantial installations there now. Certainly it is better to have our rights recognized and agreed to by treaty, it would seem to me, at whatever stage they arise and are asserted, than to leave them in limbo. With respect to certain strongly held views elsewhere, I say that there is disagreement whether the Boundary Waters Treaty is as simple of application as some believe.

Mr. DAVIS: Would you say, Mr. Fulton, that the delay which has occurred since January, 1961, in executing the treaty has been largely due to the fact that the financial arrangements surrounding the treaty have been difficult to complete? Has this been the nub of the problem?

Mr. FULTON: No, I would not describe the delay as being due chiefly to financial arrangements. It goes much beyond that. It was a question of policy to be followed in connection with the use and disposition of the benefits. Finances do enter into it, but it was a much wider area of policy that became the matter at issue. The British Columbia government, as I say—and I know there are those who think they are right; I am not attempting to argue the merits of

the positions—moved steadily from a position which at first accepted the bulk of the benefits being brought back to meet British Columbia's requirements to a position that Peace river was going to do that for the first stage, and therefore all the Columbia river benefits had to be disposed of in the United States.

Mr. DAVIS: In other words, the shift in priority of the British Columbia plans progressively created a financial problem?

Mr. FULTON: There is physically no market for British Columbia downstream power or otherwise for the time that Peace is being used to fill that market, so there would be no market, and that would create a financial problem. As I said in my submission, once that decision was made it was inherent and inescapable that, for a period at any rate, if the Columbia was to be developed at all a market had to be found en bloc for our benefits in the United States.

Mr. DAVIS: As you recall, did the British Columbia government indicate an enthusiastic interest in the export of power, let alone downstream benefits, in the years 1958, 1959 or 1960? Were they interested in those days in the sale of power outside the province?

Mr. FULTON: Not as a matter of issue or general principle or policy. They were concerned to make clear that they felt we should recognize—and we did not deny this; we did recognize it—that portions of the entitlement which would accrue to us under the Columbia river treaty would be surplus to our requirements even without Peace. Peace did not enter into it.

Mr. DAVIS: Because of the very scale of the benefits?

Mr. FULTON: Yes, because at the time, for instance, that High Arrow comes into operation we become immediately entitled to a relatively huge block of power. It would be difficult, it may be admitted, to find a market for that all at once. Therefore it was recognized and assumed that there would be the necessity of disposing of portions of our entitlement in the United States in short periods. The United States recognized and accepted this, and the treaty was drafted to encompass that assumption.

Mr. DAVIS: And British Columbia moved round to the position that it would contemplate exports, and then began to think of exporting substantially all?

Mr. FULTON: Not exporting, no. I think the correct term must be "disposing"—disposing of our whole entitlement en bloc in the United States.

Mr. DAVIS: But not before the signing of the treaty?

Mr. FULTON: No, I hope I made that clear and I would like to repeat it. There was no suggestion that this was their position until after the treaty was signed. As I pointed out, the matter was specifically raised; it was not just overlooked, it was specifically raised, and we obtained the assurance I mentioned in my presentation.

Mr. DAVIS: When the treaty was signed, the consequence of financing was repatriating downstream power and its sale, substantially?

Mr. FULTON: Yes.

Mr. DAVIS: So this was the revenue schedule of the future on which the capital cost, the moneys to build the dams, would be raised?

Mr. FULTON: Yes.

Mr. KINDT: May I ask a supplementary question?

The CHAIRMAN: Mr. Kindt.

Mr. KINDT: The premise on which the treaty was negotiated, then, was changed after the signing of the treaty?

Mr. FULTON: Dr. Kindt, yes, that is correct.

Mr. KINDT: You mean by selling the downstream benefits?

Mr. FULTON: I would not say it was a premise to the treaty that was negotiated, but rather a basic or inherent concept in the negotiations as to the disposition of the benefits which was changed after the treaty was signed.

Mr. DAVIS: The treaty contemplated the sale of surplus downstream benefits.

Mr. FULTON: Yes.

Mr. DAVIS: But the sale of downstream benefits was not implicit in the structure of the treaty?

Mr. FULTON: That is right.

Mr. DAVIS: So what we have regarded as a short term acceptance has become a major factor in the treaty?

Mr. FULTON: Yes.

Mr. GELBER: Had the government of British Columbia put its own conditions forward initially, could you have proceeded to negotiate on those terms?

Mr. FULTON: Yes, but it would have been a very different matter to those who were negotiating, who felt that the proper policy to be followed was the one which in fact was in the minds of the federal negotiators at the time.

Mr. GELBER: You feel that this is a proper arrangement which is presently before this committee?

Mr. FULTON: Well, Mr. Gelber, I said—and I hope you will not mind if I repeat it—that I am here to discuss in detail and exhaustively the terms of the treaty, why it takes this form and everything about it, and to defend and explain it. I am not clearly in agreement with the policy regarding disposal of benefits, but with respect to that subject I accept it as decided, whether I agree with it or not. I have not changed my view, and I do not agree with it but the policy was decided last September 30 in British Columbia, and that policy is now in effect, and you are considering the treaty on that basis.

The questions I hope to be able to help you with are these: Is it a good treaty? Does it, as a treaty, represent an advantageous arrangement for Canada and British Columbia? My answer to them is unhesitatingly yes, it does.

Mr. DINSDALE: Is Mr. Fulton in a position to say that in the early stages of the negotiations the impression made by the British Columbia government was that they were greatly concerned with and interested in providing low cost power to the province of British Columbia?

Mr. FULTON: Yes, that is so. I would agree with you; and it was agreed between us—and when I say between us, I must make my formal position clear. I was not a member of the policy liaison committee, but as chief of the negotiating team, I was in attendance at all the meetings after negotiations started and at some before. So as far as taking up the subject with them is concerned I am reporting on what took place at the discussions as embodied particularly in the record.

It was agreed between us, certainly the federal representatives and the representatives of British Columbia, that the Columbia river development with its substantial quantity of potential low cost downstream power available was soon after construction commenced, to be the next major source of low cost power, and that the best deal in effect to be made for the treaty could be negotiated along the line we were trying.

Mr. DAVIS: You refer to the fact that it was understood that initially there would be some substantial surplus, but that it would rapidly decline as downstream benefits were brought back to Canada.

Mr. FULTON: Yes.

Mr. DAVIS: Article VIII of the treaty considers the disposal of these downstream benefits, and it includes in its first paragraph words to this effect:

With the authorization of Canada and the United States of America evidenced by exchange of notes, portions of the downstream power benefits to which Canada is entitled may be disposed of within the United States of America.

These are downstream benefits. My question relates to the next sentence which reads as follows:

The respective general conditions and limits within which the entities may arrange initial disposals shall be set out in an exchange of notes to be made as soon as possible after the ratification date.

Mr. FULTON: Yes.

Mr. DAVIS: My question is this: why was it considered desirable to settle on the terms, price, and so on after ratification, as distinct from before ratification? Why was this important?

Mr. FULTON: For the very plain reason, Mr. Davis, that the disposal of downstream benefits in the United States, was, as it were, incidental to the treaty. The primary purpose of the treaty was the recapture of our entitlement for use at home, and the agreed approach was that this would be the pattern for the future. So the question of disposal of portions that were surplus was not a major question in the negotiations, or, at that time in the consideration of financing. And it was precisely for that reason that we did not consider it essential to the arriving at an agreement as to the position of interruptable portions of surplus power prior to the ratification of the treaty.

Mr. DAVIS: I can quite understand it.

Mr. FULTON: If, on the other hand—I hope you will give us credit for common sense—the purpose had been to dispose of all our benefits downstream in the United States, we would then have certainly insisted on having a price written in, or agreed to before ratification. Therefore, if further proof is needed, it was agreed that the primary purpose was to get these benefits back again for use here, and that only for short periods would we have a market for temporary surpluses in the United States.

Mr. DAVIS: For a time surplus would be very substantial.

Mr. FULTON: I do not say it would be very substantial. I said initially it was expected that with High Arrow there would be a substantial surplus at that time. But later on, in the course of negotiations, it never got to the point where it needed to be formally written out. The United States made us a very interesting offer. They said we recognize your problem here, and we can tell you now that we will be—I am not sure that I am using the correct technical terms—firming up the Bonneville power grid transmission system, and we will be in a position to deliver to you at Blaine a substantial portion of your entitlement if you want it. We are prepared to deliver it to you even in advance of the time when your dams are completed. So you can, in effect, accumulate a debit with us which would then be very helpful in offsetting in advance at least a large part of the temporary surplus which would otherwise arrive at the particular point of time when Arrow came in.

Mr. DAVIS: This temporary surplus was, in the middle of 1960, expected to be of the order of magnitude or rather of the same order of magnitude as the proposed sale in British Columbia at that time, and there was obviously going to be a surplus.

Mr. FULTON: No, I do not accept that at all. None of the forecasts made by the British Columbia people in concert with our own people indicates such a situation.

Mr. DAVIS: What are the amounts? As I understand it, they were of the order of one million kilowatts in capacity coming in as a result of the Arrow.

Mr. FULTON: Arrow is 800,000 k.w.'s. But you will remember that we were then proceeding on the basis of a load growth factor of 8 per cent per annum.

Mr. DAVIS: One million kilowatts must be seen in the context in which it is taken?

Mr. FULTON: Eight hundred thousand is the figure for Arrow. That is the figure you are using.

Mr. DAVIS: The other two projects would come in very shortly.

Mr. FULTON: What other two?

Mr. DAVIS: Arrow and Duncan.

Mr. FULTON: Yes, Arrow and Duncan.

Mr. DAVIS: And the order was 800,000 to one million kilowatts, and it would have been coming in, in the middle of 1960, into the utility system, of the order of from one million to one and one half million kilowatts. Am I including an extension of British Columbia hydro at that stage? In other words, there was not a very large surplus coming in at that moment?

Mr. FULTON: They would take place in something like this order: Duncan in four years, from construction, or from commencement to completion; and during that time the British Columbia market would be growing; Arrow, in five years, and Mica in nine years.

Do not try to paint the picture that you do with Duncan and Mica with one and one half million kilowatts, and at the same time have everything appear quite so disastrous as you would suggest.

Mr. DAVIS: My only point is that this power would not be absorbed in months; it would take several years, if not longer, to absorb it.

Mr. FULTON: We recognize that.

Mr. DAVIS: I am merely questioning the clause which says, "let us determine the price after ratification."

Mr. FULTON: The reason was as I have given, that it was then the approach of all parties as negotiations proceeded that the question of marketing in future the temporarily surplus power to which we were entitled was not a major factor which had to be resolved prior to the signing of the treaty.

Mr. DAVIS: I quite agree that the concept of what is surplus did change very substantially after the treaty was signed.

Mr. FULTON: Yes. I must be fair and accurate here. The only modification I make of that is that the British Columbia negotiators, even before they obviously changed their position, did say they would like to have that worked out simultaneous to ratification so that the note could be exchanged immediately setting the price of the initial sales. This was all right with us.

Mr. DAVIS: I would like to explore your attitude or the attitude of the then government to the sale of downstream benefits. The concept has become one of financing based on the downstream benefits. That was not a condition in 1960 or 1961.

Mr. FULTON: I cannot quite agree with the way you put that. The downstream benefits were the primary asset and primary benefit which were to be sold, and it was the proceeds of sale which were going to make this an economical and viable project. They were going to be sold in Canada, and

Canadian dollars used for them instead of American. I think Canadian dollars are just as capable of supporting this project as are United States dollars. I was not able to get my concept across.

Mr. DAVIS: I quite agree with the concept that United States dollars conceivably are as good as Canadian dollars through the exchange rate, but why should it not be accepted as a long term sale?

Mr. FULTON: I suppose I could give a rehearsal of the whole controversy, but I do not think this committee really wants to go into that. I stated publicly in speeches at the time that I thought the right policy was to get the power back into Canada. I am not trying to make a hero of myself; but I strongly felt it was the policy for British Columbia, and I fought an election on it. It is not the policy that was accepted and supported. Another policy is in effect, and I accept that situation. I am prepared to go into the details, but I do not know that it advances this discussion very much.

Mr. DAVIS: I have the impression that a number of people think there is some inherent goodness in the downstream benefit which is unique. I would argue that if you get a high enough price for it, you can subsidize the cost of power production in Canada and get lower rates that way. You would have to bring the power into Canada.

Mr. FULTON: If you sold the benefits at a profit, yes, there certainly can be argument that that is a good thing, but you also have to consider the other side of the question; that is, what is happening in the meantime with regard to the cost to you of the power you have to use at home in place of the power you sell elsewhere. That factor never was brought into equation in any of the calculations I have seen.

Mr. DAVIS: You would agree that if you received a sufficiently high price for leaving the downstream power benefits in the United States, this could more than offset the necessity of bringing it back.

Mr. FULTON: There are a number of basic things which could happen, but I am not going to rehearse again the controversy. All I can say is we did not get the price for it that certain people led us to expect we would.

Mr. DAVIS: One way in which a low price is coming about in Canada, as I understand it, is that the sale of downstream benefits will pay for the Mica creek dam, and therefore the on site power costs at Mica creek are quite low.

Mr. FULTON: I would not argue with you. I do not think the present arrangement is the most profitable one to be made for British Columbia. I stated that and that view did not prevail, but I still think the Columbia river treaty is a good one, and while regrettably the full benefits we might have realized from it are going to be deferred for a substantial period of time, ultimately we will derive benefits from it. I would say that it speaks well for the way we negotiated the treaty that in the long run it will advantageous for British Columbia in spite of what has been done with it in the meantime.

Mr. DAVIS: I agree that perhaps it is a shame the on site generation of Mica creek will not come in as soon as it might come in, but is it not a good arrangement to leave the downstream benefits down there for several years and to have a good on site power source in Canada?

Mr. FULTON: Theoretically, yes; but the answer depends on an analysis, which I have not seen made, which would take into account all the factors including the cost of the power you are going to be compelled to use in the meantime, including the question of the time at which it might be brought in. I have seen no authoritative conclusion with regard to the time at which the Peace river output will have been completely absorbed by the British Columbia market, and the time at which, therefore, there will be a market in

British Columbia for at site power. I have seen no authoritative conclusion in respect of when that will be. That is another factor which has not been weighed in endeavouring to get at the equation. So, in theory the answer to the question might be right if the factors are right, but they have not been fully analysed so far as I know.

Mr. DAVIS: My last question has to do with flood control as distinct from power. Some of the critics of the treaty before the protocol was written, and some of them indeed after it was written, have claimed that the United States, or a United States entity, could call for flood control measures under almost any circumstances. The protocol deals with a definition of what is a flood, and I wonder whether you could give us some idea of what limitations you thought existed prior to the protocol with regard to the freedom of the United States entity to call for flood control more or less indiscriminately and in a fashion which perhaps would undermine our on site power production in Canada?

Mr. FULTON: There are a number of factors which would be at work there. First is common sense and good faith. I realize you cannot rely exclusively on that, and there should be safeguards as well. There are, I think, a number of them. One is that even after the expiry of the treaty term, if the United States calls on us for flood control operation, they are required to make good to us any loss or expense we may suffer. I think that is going to be a restraining factor; they are not going to call indiscriminately when they have to pay. However, there is the other important factor which is overlooked, it seems to me. There are those who make the point that Mica creek is the only place where power at site is an important consideration. Of the seven million acre feet of storage at Mica creek which is committed for use in accordance with the plans under the treaty, only 80,000 are committed for use in the flood control operating plans; only 80,000 out of seven million. So, a call on us, even out of time and out of reason, for a flood control operation would not, as I see it, and in the view of the advisers who considered this problem, really damage us with regard to power production because its effect on the Mica operation would be so limited.

Mr. KINDT: Mr. Chairman, I have a supplementary question. Then, they may call upon us forever.

Mr. FULTON: Yes, so long as the Columbia river waters in their natural channel constitute a potential flood hazard below the border.

Mr. KINDT: Then, why did we take that on?

Mr. FULTON: I think I gave the reason in my presentation.

Mr. KINDT: Yes, at the bottom of page 22.

Mr. FULTON: This is a service which we gave in the interest of the lives and property of our neighbours, which we may be requested to provide, and which we agreed in advance to furnish but on a basis on which there will be absolutely no cost or loss to us; and it is provided by dams with respect to which the portion of their cost attributable to flood control purposes has been fully met and amortized by the cash payment in advance. Under these circumstances we felt we could afford to be that good a neighbour to the United States.

Mr. MACDONALD: I have a supplementary question. Mr. Fulton used the words: forever so long as the water flows down there; would it not have been better to say "so long as the water flows down there and as long as the existing structures remain?"

Mr. FULTON: Yes. I am sorry, but the second part is inherent.

Mr. RYAN: If we divert out of their natural channels, would it not follow they would no longer form a hazard?

Mr. FULTON: That is correct.

Mr. DAVIS: If I may continue now in respect of flood control, the first clause in the protocol produces a definition of what constitutes a flood in the United States; secondly, as I recall it, it requires the United States to use its own resources first before calling on Canada and, thirdly, there is some machinery for consultation. Do you regard that as an improvement from the point of view of clearing up some conceivable conditions?

Mr. FULTON: It is one of the things we expected the entities to do almost immediately when they got together after the treaty was ratified. I am happy it has been done since. But, the decision made by the policy committee, a decision to which British Columbia was a party, was that our approach to the kind of treaty we should draw should be a treaty which would set out certain principles and, in connection with these principles there were to be guide lines. However, the details were to be worked out by the entities. These were the instructions. Therefore there were some details which the treaty charged the entities with the responsibility of working out. What has happened now is that before the entities worked out the details they were worked out by the subsequent negotiations. I am not quarrelling with that or minimizing it. I say as a fact that these were things which were expected would be worked out in detail. However, I am glad of this.

Mr. DAVIS: To a degree, these were the understandings in the minds of some people who were present at the negotiations but they had not been spelled out while others became alarmed at the lack of clarity as a result of which they were critical of the treaty in this respect. Could there not have been a possible dispute, if this was not worked out, between others who may represent the entities at a later date and who were not present at these negotiations?

Mr. FULTON: Yes. However, this concern may or may not have been the motivating factor of the extreme opinions which have been given. I revert to what I said before, that there were a number of factors written into the treaty which, in my view, had a very definite restraining influence on the possibility of the United States authorities making unreasonable and untimely demands on us for flood control operations; the treaty was not wide open on these points.

Mr. KINDT: Then the \$64 million which the United States is paying us for flood control is a measure of value which we have taken and, in perpetuity, we are expected to protect them from flood damage?

Mr. FULTON: Not quite in perpetuity. The International Joint Commission principles which we followed completely set out that the payments for flood damage prevented by Canadian storages should be one half the annual value of that protection and that at the option of the receiving country, Canada, it should be received annually over the duration of the treaty or should be capitalized and paid in a lump sum at the beginning of the treaty. At the request of the British Columbia government we exercised our option, which represents a present value of 60 annual payments in a certain amount.

Mr. KINDT: Yes, discounted to the present.

Mr. FULTON: Yes.

Mr. HERRIDGE: Mr. Chairman, I have a supplementary question. Mr. Fulton, do you know that the United States authorities estimated their flood damage in 1948 at \$100 million?

Mr. FULTON: But that was in one particular year; we took the average over a period of 60 years.

Mr. HERRIDGE: Yes.

Mr. FULTON: You cannot very well charge them \$100 million every year for 60 years.

Mr. HERRIDGE: I should say not.

Mr. FULTON: You must remember that we are taking steps to prevent flood damage so there will not be that tremendous devastation. If we did not do that a flood may cost more. We had to take into account what it would cost them to provide protection and they were prepared to pay up to that amount. I do not know whether or not it is quite right but the International Joint Commission principle suggested a formula upon which they should be willing to pay us. Of course, they would not be prepared to pay us more than they figured it would cost them to provide this protection. They figured it would not cost them that much, and we felt the formula was fair. An operating formula to extend the flood protection was worked out without disadvantage to Canada and, therefore, the arrangement represented an advantage to both sides.

Mr. HERRIDGE: Was any consideration given to the enormous increase in real estate values in the lower portion of the Columbia?

Mr. FULTON: Yes. The basic factor used was a projected estimate of value in the year 1985.

Mr. HERRIDGE: Do you mean to say that in our payments we received some consideration for the enormous increase in real estate values?

Mr. FULTON: Yes, on the basis of an estimate of values in 1985.

Mr. HERRIDGE: Do you know that United States papers in Portland state that real estate values have increased by \$1,000 million?

Mr. FULTON: No. However, I am aware there is a rapid increase in real estate values on both sides of the border. One thing should be said here in respect of the flood provisions. After an intensive study by the International Joint Commission, we felt the sound thing to do was to adopt these principles as the guides for our negotiation, and then to stick to them. I am satisfied, in accordance with these principles, that an adequate and fair formula of policy was worked out. If taken annually during the 60 year term I believe the gross total, not with interest added, would be something in the order of \$178 million.

Mr. LEOE: Mr. Chairman, I have a supplementary question. Is it not a fact that the increase in real estate values would attend any flood controls the United States would effect in the same way?

Mr. FULTON: Yes,

Mr. Davis: I have one last question, which deals with compensation for flood control. I think many people have it fairly fixed in their minds that the only payment we will ever receive is the \$64.4 million U.S.; is it not a fact that for a period beyond the treaty period and for additional services there are two additional sources of revenue? I am reading from article VI, clause (4) Canada would receive:

- (a) the operating cost incurred by Canada in providing the flood control, and
- (b) compensation for the economic loss to Canada arising directly from Canada foregoing alternative uses of the storage used to provide the flood control.

I would like your comments in respect of (b). Obviously this could result in a very substantial payment from time to time to Canada.

Mr. FULTON: Yes. That is what I was pointing out in an earlier answer to a question put by you. There are provisions built into the treaty which mitigate very heavily against unreasonable and untimely calls for provision of flood control operations on the one hand and ensure on the other hand that

if they are made we are compensated in full for any loss or damage we may suffer. I take it you quoted that provision with approval, and I might say that I am glad to find that you agree that this is a good treaty.

Mr. DAVIS: I am referring to the alternative use that we might forgo. Let us assume that in 1970 a question arises regarding whether we should let the water out of the Arrow lakes storage or keep it to perform some function for the United States. Is not the evaluation of the alternative use in 70 years time the use or the revenue we Canadians could obtain by practising agriculture, or something of that type in the Arrow lakes area? That would be alternative use; is that right?

Mr. FULTON: No. So long as the water is stored there we are not actually using it.

Mr. DAVIS: The quotation I read refers to the forgoing of an alternative use.

Mr. FULTON: I am not going to attempt at this time to give a legal opinion, Mr. Davis. Perhaps I should have said that a strong case could be made that this means the use as presently designed or intended as evidenced by what is being done during the immediate surrounding periods of time. There may well be a case made that we could get a considerable return by using it in some way that we have not yet done, and that this is a potential use. I am reminded by one individual who was with me during negotiations that this is one of the areas where we felt we could not be too precise in trying to write in what will happen 60 or 70 years from now. We felt we should lay down the principles and see what will happen within the 60 year period. We have approached this with the idea that some things will have to be left open for further negotiation.

Mr. DAVIS: Then it is open to evaluate alternative uses to the storage. We are dealing with Canadian territory that at a later date we might use in an alternative way for agriculture or industry.

Mr. FULTON: I do not think it can be assumed that at the end of the 60 years the Columbia river treaty is then finished. We feel that what will happen then is that we will be in a strong position to renegotiate this treaty in whole or in part in advantageous terms for Canada's circumstances at that time.

Mr. KINDT: Is it not true that by that time the upper Columbia area will be a hinterland because of the fact that the Arrow lakes area will be flooded? Surely there will be no land left there for agricultural purposes. I understand 1,800 people will have to move.

Mr. FULTON: The area flooded by the Arrow dam will not comprise in relative terms a very substantial agricultural area. I am not going to minimize this area in importance economically or sentimentally, but there are many other areas in the interior of British Columbia relatively adjacent to that area which will be served in other beneficial ways as a result of the Columbia river development.

Mr. HERRIDGE: Mr. Chairman, I might say that the retired district horticulturist disagrees entirely with that conception.

Mr. FULTON: Mr. Herridge, I said that we recognized at the inception that the inclusion of the Arrow lakes project would create some political problems.

Mr. HERRIDGE: The senior Progressive Conservative member for Kootenay West can be included in that statement.

The CHAIRMAN: I should like to remind members of this committee that this is not the type of evidence this committee has come together to hear from the witness.

Mr. HERRIDGE: We are all human, Mr. Chairman. We cannot help ourselves.

Mr. FULTON: I do expect a vigorous but pleasant exchange with Mr. Herridge in this regard.

Mr. BYRNE: Mr. Chairman, I move we adjourn.

The CHAIRMAN: We will meet again at 10 o'clock tomorrow morning.

Just before adjourning I should like to indicate that the proposed steering committee meeting planned for this evening will be deferred until 7.30 p.m. tomorrow.

The meeting is now adjourned.

TUESDAY, May 12, 1964.

10.00 a.m.

The CHAIRMAN: Gentlemen, I see a quorum. I beg to report that since our last meeting we have received correspondence from J. D. McDonald, professional engineer, of Rossland, British Columbia, R. M. Lumley, of Arrow Park, British Columbia, and a postcard from David Groos, of Nakusp, British Columbia. I guess it should not be included.

We are to continue with our witness, the Hon. E. D. Fulton. I believe Mr. Davis had nearly completed his questions.

Mr. DAVIS: I have just one more question.

The CHAIRMAN: And following Mr. Davis we have Mr. Herridge. Now, Mr. Davis.

Mr. DAVIS: Mr. Fulton, towards the end of your brief you refer to an apparent change of heart by the British Columbia government with regard to the sale of downstream benefits and of their disposal. You also refer to the fact that as late as January 12, 1961, you had a letter from Mr. Williston, to you continuing to indicate that the British Columbia government was interested in bringing back power to Canada for sale. To what do you attribute this change of heart? Did you understand that a comprehensive study had been made of alternatives in British Columbia against which the treaty could be viewed? Had British Columbia and the government of Canada available to it studies which indicated the cost of power from alternative sources, showing that the treaty power was the cheapest?

Hon. E. D. FULTON, Q.C., P.C.: Yes. I think there are several questions and I will try to deal with them one by one. I will take your last question first. My recollection is that it was pretty clear there were sources of hydro power in British Columbia which were as inexpensive if not less expensive than the Columbia, but they were not major developments. The information we had was that the Columbia river was the largest source of low cost hydro power then available anywhere on the continent. It certainly appeared to us to be the general decision of British Columbia to proceed with the Columbia development as the next major source of hydro supply for its market requirement. I do not pretend that we cross-examined them on it, because that was not the tenor of the relations between us at the time. We appeared to be more or less *ad idem* on that point.

You asked me what I think made the difference. I can only answer that it was the decision to put the Peace in the position of priority as a supplier of the British Columbia market that made the difference in our approach to the Columbia.

Mr. DAVIS: Had the government of British Columbia presented cost estimates of alternatives including the Peace prior to the signing of the treaty?

Mr. FULTON: The Crippen-Wright report had been made available to British Columbia and they had made their studies available to us. This included the Clearwater development. I do not think we had any authoritative figures with regard to the cost of the Peace; but we did have a vast amount of information on the Columbia river because these studies had been going on since 1944.

Mr. DAVIS: In other words, British Columbia had not provided a comprehensive analysis of alternatives at that stage?

Mr. FULTON: With the exception of the Peace, I think I could say yes.

Mr. DAVIS: That it had?

Mr. FULTON: Yes, and there appeared to be no satisfactory alternative to the Columbia from the point of view of cost and the amount of power that would be generated.

Mr. DAVIS: Thank you.

Mr. LEBOE: Mr. Chairman, I have a supplementary question.

Mr. FULTON: Perhaps I should make one more qualification. There is the Bulkley river and other rivers; there is a huge potential supply of hydroelectric power in British Columbia. However, when you take all the relevant factors into consideration, the stage at which the feasibility studies had developed—proximity to market, and so on—it appeared to be agreed there were good grounds for the conclusion that the Columbia was the best large scale hydro development.

Mr. DAVIS: I know from personal knowledge that the British Columbia Electric, the biggest utility in the area and which then was building a steam plant, never was asked for costs. There were other unknowns, and the Peace river was one of the unknowns.

Mr. FULTON: Remember that discussions took place which should be studied in detail. If we had not had the negotiations at the time we did, in all probability we would not have a Columbia development in Canada at all.

Mr. DAVIS: Perhaps I should phrase this by way of a question. British Columbia did not appear to me, at least, and I am wondering if it appeared to you, to have looked at these alternatives very carefully and then decided sometime around January, 1961, it should look harder at these alternatives?

Mr. FULTON: I think that conclusion would be justified from the facts. However, the other conclusion might be there were other considerations; perhaps it was felt there was a commitment with respect to the Peace, which was binding. Therefore, so far as we were concerned, that decision was taken suddenly and it was a reversal of the previous decision.

Mr. LEBOE: Mr. Chairman, I have a supplementary question. Mr. Fulton, would you not think that the policy which British Columbia had adopted about that time in respect of a uniform cost of power throughout the province had a bearing on their decision that time?

Mr. FULTON: I am not quarrelling with your statement. Although that was the decision I do not see that it had any bearing on the decision in respect of our source of hydro power to develop things.

Mr. LEBOE: It seemed to me that coupled with this the federal government's decision to encourage the export of power meant that the whole complex taken together would give British Columbia a different look at the Columbia river basin as a potential power producer.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, on a point of order, you have been very strict with a number of us in respect of imparting evidence.

The CHAIRMAN: Is this a question of irrelevancy?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No, members imparting evidence on the record instead of putting questions. Mr. Leboe is not asking a question.

Mr. LEBOE: I was enlarging on the basis of the witness' answer to me.

The CHAIRMAN: May I recognize Mr. Herridge?

Mr. HERRIDGE: Mr. Fulton, are you aware of the fact that the people of Kootenay West are approaching this problem from a non-partisan point of view and, in speaking, I had the support of many members of your party, the Liberals, the full support of our own party and some Social Credit supporters.

Mr. FULTON: That may be. Of course, I do not know what correspondence or conversation you had.

As you know, I lost the provincial election on September 30; the Social Credit member won that seat. And, in Revelstoke, where there had been an N.D.P. member prior to that time a Social Credit member won that seat as well.

Mr. HERRIDGE: Mr. Fulton is confusing asphalt with treaties.

Mr. FULTON: It is obvious that this question of power policy and on what basis it would go ahead in respect of the Columbia was an issue in the last provincial election.

Mr. HERRIDGE: You have not answered my question. Do you not know there are prominent Conservatives and members of your party who endorse wholeheartedly the attitude of the member for Kootenay West in respect of this question?

Mr. FULTON: I do not deny that.

Mr. HERRIDGE: Well, that is getting off as lightly as possible.

Mr. Fulton, you arrived here in Ottawa the night before last; is that right?

Mr. FULTON: Yes, I arrived on Sunday evening.

Mr. HERRIDGE: I have been so informed by one of your party.

The CHAIRMAN: Mr. Herridge I do not think we should question this.

Mr. FULTON: I have nothing to hide.

Mr. HERRIDGE: Mr. Chairman, I am laying the historical background.

Mr. FULTON: I have not been to Place Pigalle.

Mr. HERRIDGE: I am sure you have not been there.

The CHAIRMAN: Mr. Herridge you must not make these proceedings so riotous.

Mr. HERRIDGE: Mr. Fulton, as far as the technical aspects of your brief are concerned, you have received considerable assistance from the officials of the water resources branch since you arrived in Ottawa?

Mr. FULTON: Mr. Herridge, I prepared my brief in practically final form with the exception, as I recall it, of five points which I wanted to check. I refer to such points for instance as the precise designation of Mr. Matthew Ward's position with the Ontario Hydro Company when we retained his services. I had my brief outlined on the basis of my recollection of that time and as a result of refreshing my memory by reference to the minutes. Of course I did want to go over the whole thing with the two federal negotiators who are with me today and who have been with me throughout, and with some of the advisers, to get opinions in respect of these specific points, and to make certain that what I was saying was accurate. That is the assistance I requested and received in full measure.

Mr. HERRIDGE: You received every co-operation from the Clerk of the Privy Council and officials?

Mr. FULTON: The Clerk of the Privy Council was former deputy minister of northern affairs and a Canadian negotiator.

Mr. HERRIDGE: Do you know Mr. Green? Mr. Fulton, I may be confusing this situation. The hon. Howard Green said in the House of Commons on April 13, 1962 that the United States had agreed to accept the McNaughton plan but then the treaty had to be changed because the British Columbia government refused to go along with this plan. How does that statement compare with the statements contained in your brief which would appear to indicate that there is a difference?

Mr. FULTON: I think there is a slight difference there between Mr. Green and myself. I think this is a technical inaccuracy rather than a substantive departure, because if one stops to think of the package which Canada first offered, and I believe I am correct in saying it is commonly known now as the McNaughton plan, it did include the Kootenay diversion for which General McNaughton has shown a great attachment. It included also the High Arrow dam rather than the lower. I think if one is going to be technical we did not technically put forward the McNaughton plan. That is the only difference between what I have said and what Mr. Green said.

Mr. HERRIDGE: Are you aware that the Hon. Douglas Harkness made some statements during the debate to refer the treaty to the external affairs committee?

Mr. FULTON: I stated in my brief that the negotiators with the authority and approval of the policy liaison committee put forward a package containing the Dorr Bull river-Luxor complex, Mica creek and High Arrow-Duncan. I think the main point has been whether we were at that time prepared to agree to the Kootenay diversion immediately. The answer is yes. As my brief points out specifically, while the matter was still in the position of negotiation, and while the United States was still pressing hard for certain conditions that it felt must be attached to the acceptance of this package, the British Columbia government made it clear it would not authorize the major Kootenay diversion at that time.

Mr. HERRIDGE: Mr. Fulton, would you say that all your colleagues who were members of the former government agreed with your present point of view as expressed in your brief outlining the developments?

Mr. FULTON: Yes. I would say they agreed in principle. I do not say they agreed with every detail.

Mr. HERRIDGE: They all agreed that this is a good treaty?

Mr. FULTON: Yes.

Mr. HERRIDGE: I should like to make brief reference to what is known as your famous Prince George speech.

Mr. FULTON: Yes.

Mr. HERRIDGE: Did you say when referring to Premier Bennett's proposal for long term sale of downstream benefits that this was the greatest sellout since the Indians sold Manhattar. island and that accepting such a proposition would make us the laughing stock of the world?

Mr. FULTON: I said that, and I said it would do that.

Mr. HERRIDGE: Have you changed your opinion in that respect?

Mr. FULTON: I do not withdraw what I said at Prince George.

Mr. HERRIDGE: So you still believe that?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): May I ask a supplementary question in the light of what Mr. Fulton told us?

Mr. FULTON: I made it clear yesterday, and I do here, that I still do not think the policy being followed with respect to this position of our benefits is right, but it has been decided.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): In the light of Mr. Fulton's submission, and he made quite a strong statement about a very important factor in the present treaty, could he tell us how he reconciles it with really quite a solid approval of the very thing he denounced so heartily in Prince George?

Mr. FULTON: I do not know how I can make it clearer that I was in disagreement with the policy and that I still think it is not the best or the right policy. I am in the unique but perhaps unfortunate position of having fought an election campaign on that basis. I do not think anything I could have done would have made my position clearer and I cannot think of anything else I could have done to endeavour to have my views prevail, but they did not.

Mr. BREWIN: Mr. Fulton, I cannot quite follow this part of what you say. Perhaps not all of us but many of us have had the shattering experience of defeat in an election, but how does that, at least to those of us who have to look at it from a federal point of view, change the fact that what was before described by you in the colourful terms you used, now becomes something that is irrelevant to our consideration just because there was an election?

Mr. FULTON: I did not say that. That is the interpretation Mr. Cameron is seeking to put on it. What seems to me you would like me to do is to come down here and oppose the treaty and say it is a bad treaty because of a decision that has been made as to the disposition of the benefits secured by the treaty. I think you would like me to do that.

Mr. BREWIN: You can do whatever you think is right. I am trying to get to your reasoning. I understand your reasoning to be that somehow or other something that was worthy of condemnation prior to the election in British Columbia has changed.

Mr. FULTON: I still think it is wrong; I have not changed my view. I have not withdrawn what I said in Prince George.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Fulton, could I pursue the question? Would you not agree that something that is condemned in the unmeasured terms in which you condemned it in Prince George—this is not a mild intellectual disagreement, it is a violent condemnation of a very important factor in this treaty—has apparently now become acceptable to you. I think this is a question which the committee has a right to know.

Mr. FULTON: Mr. Cameron, I am sorry you still persist in saying it has become acceptable to me. Surely there is a great difference between saying I accept a verdict on the one hand and saying I agree with it on the other. All I have said is I accept the fact that in spite of my best efforts the Peace river has gone ahead first; it has taken priority over the Columbia, and the Columbia river benefits are being sold in the United States. Now surely, Mr. Cameron, you are not going to blind yourself to the fact that that is the situation. That is the situation I was fighting to prevent when I made the Prince George speech, and that I fought to prevent right up to last September 30, and that I have still said I disagree with. If I could see any effective way of reversing that situation, I assure you I would be doing it, but it just does seem to me that the issue, for all practical purposes, is now settled.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This still leaves you in the position of having stressed repeatedly throughout your brief and repeatedly in your oral presentation the fact that now in your opinion this treaty is an advantageous one for Canada.

Mr. FULTON: I did not change; all along I have felt that the treaty was an advantageous treaty for Canada. Where my sharp difference of opinion lay was with respect to the disposal that should be made of the benefits the treaty secures, whether those should be used at home or sold abroad.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I want to get this point cleared up.

The CHAIRMAN: May I be the Chairman for a moment, please? I am not going to cut these supplementary questions off because they are relevant. I would ask you, Mr. Cameron and other gentlemen if you would be very careful to allow Mr. Fulton to answer. It appears that a number of questions come in at him so rapidly that he really does not have a chance to answer what has been asked.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I would like to put this final question. You will agree, will you not, sir, that you have, throughout your brief, suggested that this treaty is by and large advantageous to Canada?

Mr. FULTON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Can you tell us how a treaty which contains provisions which you have described as the greatest sellout—let me finish my question—since the Indians sold Manhattan, and will make us the laughing stock of the world, could be advantageous to Canada?

Mr. FULTON: There is a fundamental inaccuracy in your question. The treaty does not contain those provisions. The treaty does not say that the downstream benefits will be sold en bloc in the United States; on the contrary in the words of the treaty, as I said in my brief and made clear yesterday, the concept was that they should be brought back for use in Canada. My quarrel was with the separate and independent decision which had been taken, that the benefits secured by the treaty should be sold. That is not in the treaty.

Mr. DAVIS: You agree then that the protocol and the terms of sale now attached to the treaty do, in your view, make a substantial change in the treaty?

Mr. FULTON: No. The treaty has been substantially unchanged. What has been decided is that the benefits would be sold in the United States. There were lengthy negotiations with regard to the terms of the sale which are the main virtues of the protocol and sale agreement.

Mr. DAVIS: What was the exception has then become a rule for a period of 30 years, the exception being the sale of surplus.

Mr. FULTON: That is not an exception in the terms of the treaty.

Mr. GELBER: I have a supplementary question. Mr. Fulton, the disposal of downstream benefits is not as fundamental a matter as the treaty itself. Is that correct?

Mr. FULTON: I think I would agree with that.

Mr. GELBER: Now, the Peace decision having been taken within this Parliament, this alters the facts of the situation.

Mr. FULTON: I am afraid so, yes.

Mr. GELBER: Therefore, would you revise your criticism of the disposal of the downstream benefits applying to an earlier period in view of the fact that this additional factor has been created, that is the Peace river decision?

Mr. FULTON: May I answer that indirectly? I see no alternative now to the disposal of the downstream benefits in the United States, now that the Peace river has gone ahead and a decision has been taken to supply British

Columbia markets from Peace river power. I said in my brief yesterday that once a decision was taken it made it essential to dispose of our benefits en bloc in the United States.

Mr. GELBER: But you do not seem to have altered your position on the question of the downstream benefits in view of the Peace river decision.

Mr. FULTON: I still think it was a wrong policy to have followed.

Mr. GELBER: But it was not within our competence as the parliament of Canada. That decision was taken outside our competence and therefore the question of the disposition of the downstream benefits has to be looked at again. Have you looked at it again or are you simply continuing the position you had prior to this decision?

Mr. FULTON: When I came down here I specifically wanted to avoid getting into a controversy on the basis that I think it would be fruitless because the time has passed when it served any purpose.

Mr. GELBER: We have to adjust ourselves to the Peace river decision which has been taken by someone else.

Mr. FULTON: That is correct, as I see it.

Mr. BREWIN: I have a supplementary question. I want to try to clarify your position in my own mind. First of all, you made it very clear that you are in favour of the treaty as it was signed by the government, as you remember without the sale of downstream benefits. You made that very clear both before and again now. Secondly, as I understand it, you say the sale of the downstream benefits is very disastrous in your opinion. Am I right about that? Now that the sale of downstream benefits has become a fact, we have to look at the treaty with the protocol which provides for the sale of the downstream benefits. Is it your view that notwithstanding the sellout, as you described it, which is now incorporated in the treaty plus the protocol, the benefits of the treaty outweigh the merits of the sellout, as you call it, in the protocol?

Mr. FULTON: I said yesterday, and I think I was right, that it seemed to me that what happened was that benefits which should have come now to British Columbia from the Columbia river treaty are going to be deferred for a period of up to 30 years. That was something which I called a disaster at Prince George, and I have not withdrawn my words. That is the thing I was then trying to oppose. But it has now happened, and I still think it would be wise to go ahead with the treaty even though it is not going to be as advantageous as I had hoped it would be; but I still think it is going to be a good thing for Canada and British Columbia.

The CHAIRMAN: I have Mr. Brewin following Mr. Herridge, and I want to get back to Mr. Herridge.

Mr. BYRNE: I have two questions, one relating to Mr. Fulton's last answer. I think when you say return of benefits you are not saying that there are no benefits now, but rather that power will not be returned at the moment of the signing of the treaty. We are certainly receiving benefits as of October of this year, but the power will not be returned at that time.

Mr. FULTON: That is right.

Mr. BYRNE: And you do say in answer to Mr. Herridge that all or most of your cabinet colleagues agreed wholeheartedly with the position you took in January, 1961, concerning the sale.

Mr. HERRIDGE: My question was related to now.

Mr. FULTON: I am sorry. I thought I answered it on the basis that you mentioned at the time.

Mr. BYRNE: My further question is supplementary. I think you will agree that the federal policy, when your party still formed the cabinet in 1961

changed; that they changed their policy with respect to the sale of downstream benefits as indicated in the throne speech of 1962.

Mr. FULTON: No, there was no change of policy. If you wish to look at the policy of the government, you must look at the legislation which the government placed on the statute books in 1958, when it set up the national energy commission, introduced the National Energy Board Act, and set up a national energy board. That was done on the basis of power being merely a surplus requirement, whereupon the governor in council could issue a licence to permit the export of such power for a period up to 25 years. That was the policy written into the legislation introduced by our government in 1958. It was dealing with the export of power created in Canada which might be clearly surplus to our requirements.

It was that legislation which the throne speech referred to in 1962, and which it asserted and emphasized. The throne speech had nothing to do with the disposition of downstream power created in the United States. I recognized this, and I foresaw that somebody would ask: "Do you not agree that there was a reversal from the position on the Columbia river?"

The answer is no, there was not. I recognize however, that it might be so interpreted and probably would be. You will recall that at that time we were in balance of payment difficulties. What the government of the day decided to do, on the advice of a lot of experts, was to emphasize that steps were being taken to seek out new export markets, as new ways of attempting to redress this imbalance. And that export of power was one of them.

It was that situation which led to the position I emphasized, I mean that aspect in the speech from the throne. I was not particularly happy about the necessity of doing it, because I recognized that it would probably be said: "There you are. Fulton is being reversed." But that is not the fact. It is not a realistic statement.

In the speech from the throne they are dealing with the export of power created in Canada, and it was merely emphasizing what had been in our legislation since 1958 or 1959.

Mr. BYRNE: It was reasonable to assume that the provincial government, and the federal government were now adopting a policy to export power, and that they would not be adverse to adopting a policy of selling power that was already being created in the United States in fairly sizeable blocks.

Mr. FULTON: Our discussions with the British Columbia government were continuing at that time. They knew perfectly well what the position was, and what we were doing.

Mr. FAIRWEATHER: Was it not a fact that a number of export licences had been granted in 1958 and 1962?

Mr. FULTON: Yes. Five had been given under the energy board act up to the time of the throne speech announcement.

Mr. FAIRWEATHER: They were for sales in the state of Maine from New Brunswick?

Mr. FULTON: Yes, they were made primarily in the Atlantic provinces and one, if I remember correctly, involved an interchange on the lower main-land of British Columbia.

Mr. DINSDALE: Would Mr. Fulton not say that the statement in the throne speech had the Nelson power project in view?

Mr. FULTON: Yes, that is right. Thank you for reminding me. There was contemplated then a policy which would develop the Nelson river, and it was the view that it was an economically viable project which would involve the export of some Canadian power which would clearly be surplus to our requirement. It was with this fact in mind that the throne speech was made.

The CHAIRMAN: We have a fascinating witness. Would you please withhold your supplementaries, if possible?

Mr. HERRIDGE: In fairness to Mr. Fulton I would again ask my question in exactly the same words that I asked it in the first instance, and when Mr. Fulton in his answer made me feel that he misunderstood me.

Do all of your colleagues who were members of the former government agree with your present point of view and outline of developments?

Mr. FULTON: I do not know. I have not consulted all my former colleagues.

Mr. BYRNE: You have been too busy making a living.

Mr. FULTON: I am here now. I thought I was invited here to discuss the treaty. I cannot speak about the attitude of my colleagues at that time.

Mr. HERRIDGE: More will come out later.

The CHAIRMAN: I think we should remember what the purpose of this inquiry is, and what our questions are to determine.

Mr. HERRIDGE: I am right on the beam. I want to ask Mr. Fulton another question.

Did you say at Hannah, Alberta, on April 11, 1962: "Fulton says Canada would have been better off with McNaughton International Joint Commission plan for diversion of Kootenay into Columbia but could not push it without alienating Bennett?"

Mr. FULTON: I do not think I said that Canada would be better off. What I said was that the government of Canada would be perfectly prepared to accept the McNaughton proposal for a major Kootenay diversion and that we would have been as well off. I do not think I ever said we would have been better off.

Mr. HERRIDGE: Mr. Fulton, you mentioned the fact that at a certain provincial election the majority voted for a policy in opposition to the treaty. My question is this: Regardless of a provincial election, do you not consider members of parliament have a responsibility to Canada as a whole when dealing with a treaty of this type?

Mr. FULTON: Yes, Mr. Herridge.

Mr. HERRIDGE: In the light of all the circumstances, if your party had been returned to power in 1963, would you have concluded the treaty and protocol on the present basis?

Mr. FULTON: I cannot answer that. I just do not know.

Mr. HERRIDGE: You do not know. That is an unknown circumstance.

Mr. FULTON: Yes.

Mr. HERRIDGE: You mean there was an element of doubt?

The CHAIRMAN: It is a hypothetical question.

Mr. FULTON: Yes, it is purely hypothetical. I think it would be unwise in politics and foolish, if you wish, for me to attempt to answer that question.

Mr. HERRIDGE: It is what the Prime Minister would call a speculative thing.

Mr. FULTON: Yes.

Mr. HERRIDGE: Do you know that your father, as the minister of lands and works in Sir Richard McBride's government was mainly responsible for settlement for agricultural purposes on the Arrow lakes in 1905, 1906, 1907, 1908, 1909, and 1910?

Mr. FULTON: I believe my father had a great deal to do with a constructive program of land settlement there.

Mr. HERRIDGE: Do you know that these lands were sold to those settlers for from \$100 to \$200 per acre?

Mr. FULTON: No. I do not know the prices at which they were sold.

Mr. HERRIDGE: The land was considered to be so valuable that it brought those prices. Do you know that Sir Richard McBride in a speech to these settlers, on November 4, 1909, said—

The CHAIRMAN: I am sure that what we are doing now is to read into the record evidence. We are not attempting, apparently, to get any evidence from Mr. Fulton on this matter, regardless of his acknowledged historical background. We are purely and simply introducing in another guise evidence which you might care to elicit in some other way.

Mr. HERRIDGE: Yes, out on the street, or somewhere like that.

The CHAIRMAN: Maybe so, but you are not the witness today. It is the Hon. Mr. Fulton.

Mr. HERRIDGE: I am asking questions.

The CHAIRMAN: But these are not questions, I submit with great fairness.

Mr. BYRNE: Did they tie apples up in the pine trees?

The CHAIRMAN: Would you please try to comply with the established policy and not put, by questions, evidence into the record.

Mr. HERRIDGE: I just wish to bring out the fact that Mr. Fulton's father thought that the Arrow lakes was a garden of Eden.

The CHAIRMAN: That is precisely the point.

Mr. FULTON: It is on the record now. Mr. Herridge and I have often discussed it in the past. I thought you would want to refer to it today. I admitted then and I still admit that the Arrow lakes is a very beautiful valley. The question we had to look at was the matter of benefits in terms of substituting benefits by payment of cash for deferred power to Canada and British Columbia; whether they should necessitate the flooding of that valley and the dislocation which will take place on the basis of course that there would be fair compensation in money for the values lost. That is the question. I never said that we would brush aside the Arrow lakes. I appreciate your interest. The difference between us I felt was from the point of view of a great power development and potential developments that would spring from it, and whether we were justified in recommending the treaty plan including the Arrow lakes plan.

Mr. HERRIDGE: You believe that certain tangible values can be bought with money, while I do not.

Mr. FULTON: No, I do not, and I have never said it, or even implied it. I said yesterday that I appreciated your attachment practically as well as sentimentally, and that of the people in that area for their land.

Mr. HERRIDGE: In coming to this conclusion you have given full weight to the constitutional and resources aspects of the question of the intangible values, and as a result of that you think that on balance we are well advised to flood the Arrow lakes?

Mr. FULTON: I also gave consideration to those aspects of it primarily. The decision as to where to locate the physical plant is a responsibility of the province. I am not saying that we dodge all responsibility for it, but I do say that the question of the location of the dams, and the dealing with the land to be flooded, and matters of that kind, are primarily provincial responsibilities. The government of the province without hesitation agreed that it was prepared to accept that responsibility and is recommending the carrying out of this proposal. And on the basis of this proposal, and on the basis of the economic analysis made, we felt that the proposal was justified.

Mr. HERRIDGE: At this time?

The CHAIRMAN: I wish you would conclude your question.

Mr. HERRIDGE: I have been asking questions for just over fifteen minutes.

The CHAIRMAN: No, no. I am not asking you to stop them, but to continue to the conclusion of your question.

Mr. HERRIDGE: That is impossible. There are bound to be other questions arising out of the witness' answer. Is that not so?

The CHAIRMAN: I want you to complete any questions you have in your head at this time.

Mr. HERRIDGE: Yes, very well. Others will come into my head. My head is very porous. During the election campaign Mr. Dewdney described the lowering of the Arrow lakes dam. He was the Progressive Conservative candidate, and a very likeable chap. He mentioned the lowering of the dam by some 17 feet, and said that it was the Progressive Conservative policy at that time.

Mr. FULTON: Not that I am aware of.

Mr. HERRIDGE: This was in response to local circumstances.

Mr. FULTON: It was a suggestion made by many responsible sources in the Kootenay area. Mr. Dewdney had asked us to study it in the past, and we had done so.

Mr. HERRIDGE: And you rejected it?

Mr. FULTON: Yes. The main proponent of this from the engineering point of view was Mr. Richard Deane who gave evidence here recently. He put the suggestion to us. I cannot say when. Perhaps it was from a year to a year and one half ago. We had it studied and we were impressed by it. Tests and analyses were run through by the water resources branch and it was fully analysed. We came to the conclusion at the time that Mr. Deane's proposal would not have the beneficial result that he said it would. It would have involved negotiations which we thought would not have been justified. But we had it thoroughly analysed. I asked him to come down and he did so. He spent a great deal of time with the water resources branch. There was the fullest co-operation and sympathy with his proposal and it was studied to see if it could be made practical as an alternative, but the conclusion was that it could not.

Mr. HERRIDGE: Up to January 25, 1964, you are quoted as saying that Premier Bennett should act at present so that legislation establishing the Columbia river authority on a legislative basis could be set up. He said that we should profit from the experience of the Tennessee valley in the United States where there was a co-ordinating program of development which resulted in recreational and commercial benefits becoming more important than the power side of the project.

Mr. FULTON: That was information which I had concerning the Tennessee valley. I did not say that the recreational and commercial values incidental to the Columbia would in fact become greater than the power. But I said that there was a tremendous potential which I wanted to see fully developed, and that was the basis of my suggestion.

Mr. HERRIDGE: Would you mind explaining to the committee what type of authority you would suggest in the Columbia basin development in Canada?

Mr. FULTON: I would like to have seen a co-operative federal-provincial authority. When we formed a government we were prepared to co-operate in that way, but it became quite clear that there was not much point to making that suggestion to the then provincial government, and the still current provincial government, because they in fact indicated that they did not want the federal nose poked into this development apart from negotiating the treaty.

Therefore the main present proposal now being made in provincial politics is one which I thought it would do the most good. It was that they should set up a Columbia river authority to control the power and to co-ordinate the programs necessary to develop the recreational and tourist aspects of such a development, and to co-ordinate the problem with respect to the marketing of timber resources which would otherwise be flooded, and the location and relocation of roads, the provision of access roads and landing sites and camp sites and development sites at the reservoirs and the things necessary from the development point of view; and also to co-ordinate the study of matters such as the problems which will be created by the flooding, the dislocation of municipal resources and their relocation, the provision of assistance to municipalities in providing sewage, water and housing facilities for the new communities and the influx of population that will come in, as well as assistance in the education of the children. These are real problems and create pressures on the municipalities in that area now. They are going to require assistance of this kind. My suggestion is that they be set up by the legislature of British Columbia, giving it the authority and terms of reference to co-ordinate programs in all these respects. That is a matter for British Columbia.

MR. CHATTERTON: I have a supplementary question. I asked Mr. Williston whether he could tell us the approximate amount allowed in their estimates specifically for clearing the shores of these reservoirs. He said he could not disclose this information and would not do so because it would prejudice the government's position later on when they came to do the work. Would you agree that it is necessary to withhold that information at the present time?

MR. FULTON: I should have thought it would be possible to put a freeze on the values now, this close to construction. I must say I am not in a position to give a categorical answer on that. I do feel very strongly there should have been much more public information about the plans that are going to be followed in these respects than there has been up to the present time because communities in that area are virtually in the dark, let alone the private citizen, as to what they are going to have to face by way of problems and difficulties and what assistance they are going to get to overcome these problems.

MR. CHATTERTON: I have a further supplementary. Mr. Williston said, as a result of a question I put, that the government did not even set up a joint committee representing the various departments involved to supervise the over-all development. Would you say, in the absence of a legislative base for a body, that even a departmental committee might be of value?

MR. FULTON: I should certainly have thought so. I was surprised indeed when I saw that answer.

MR. PATTERSON: Mr. Chairman, on a point of order, I think we are straying into the field of provincial politics here, are we not?

THE CHAIRMAN: I think the witness has so indicated.

MR. CAMERON (*Nanaimo-Cowichan-The Islands*): My question takes it right out of the realm of provincial politics. I was interested in the question Mr. Herridge asked you in connection with your speech where you referred to the T.V.A. in the United States as the prototype of the authority and development you thought might be desirable. Is it not the case that the Tennessee valley authority was set up under federal legislation with only minimal participation by the states. That was information I had from David Lilienthal. Did you at that time contemplate the federal government taking the same sort of initiative in Canada as the federal government in the United States took with regard to the Tennessee valley authority?

Mr. FULTON: We could not because the constitutional position is quite different in the two countries. I do not think I am revealing a secret when I say that in the course of the very intensive study the Columbia river received over the years it did occur to us that it might be a fruitful field of co-operation in that area. That simply has not developed, and I will make that statement and leave it there. But what I said is that I still think it would be of great value if the province set up a similar type of authority. At any rate up to date they have not agreed with me and they think they can handle it better on another basis. That is entirely their business, and the place for me to pursue that is back home, as Mr. Patterson said.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Are you now taking the position that it is constitutionally impossible for the federal government in Canada to pursue the sort of policy the federal government in the United States pursued with regard to T.V.A.?

Mr. FULTON: Yes, unless the province invites the co-operation of the federal government.

Mr. HERRIDGE: I just have one more question which I overlooked before. On March 1, 1961, the minister of agriculture for the province of British Columbia raised a question in the legislature as a result of concern in that area concerning the possibility of increased competition from the southern states owing to the use of water from storage in Canada. He said that the possibility of tariff protection for Canadian agricultural products facing competition from United States farms aided by the Columbia river development was raised in the legislature Wednesday by the minister of agriculture. He went on to mention that he will take this matter up with the federal government. Did the minister of agriculture of British Columbia at any time when you were a member of the government bring this question to the attention of the cabinet concerning this fear of the possibility of increased production in the United States from the use of Canadian water, or did he bring it to the dominion-provincial conference on agriculture?

Mr. FULTON: I cannot answer that of my own knowledge. I think I am correct in saying that at various times and from time to time in the course of the study of the Columbia this kind of problem was considered. However, I do not think there was a specific answer to the problem. I cannot say whether or not it was done as a result of direct representation by the minister of agriculture for British Columbia. I do not recall it ever coming before the cabinet as a submission from the provincial government or from any of its ministers. It was never raised directly with us, to the best of my knowledge or recollection.

Mr. HERRIDGE: You have no knowledge of the government asking for increased tariff protection for products coming from the United States presently grown in the Okanagan and Kootenay areas?

Mr. FULTON: Certainly not in the context of the Columbia river studies.

Mr. BREWIN: Mr. Fulton, if I might refer to your written statement, at page 5, in the last paragraph, you say:

Let me repeat, however, that while I cannot be enthusiastic over a policy as to the disposal of benefits which confers on a competitor advantages which we need for ourselves, I was and am an enthusiastic proponent of the treaty itself which secures those benefits.

I know that you say in part that that is now a closed book, but I wonder if you could tell the committee what are the benefits which confer on the competitor advantages which we need for ourselves? Does that refer to the cheap power that the United States gets?

Mr. FULTON: That is what I had primarily in mind.

Mr. BREWIN: You regard that as being a competitive disadvantage for Canada?

Mr. FULTON: I think so.

Mr. BREWIN: In what respect? Would you like to elaborate on that?

Mr. FULTON: While I know the United States has paid more for power than their basic price structure, they are I think still getting this power at lower cost than they could actually get if they had to generate it themselves, if they had to create a new source.

Mr. BREWIN: In what respect will the use of that power operate to the disadvantage of the Canadian producers? Have you anything specific in mind?

Mr. FULTON: They are competitive both industrially and commercially to the extent that, speaking industrially, they get that advantage.

Mr. BREWIN: Have you any particular industries in mind such as the aluminum industry?

Mr. FULTON: This is one of them.

Mr. BREWIN: I have an incidental question. At page 9 of your brief you refer to the services of Mr. Matthew Ward, director of planning with Ontario Hydro, being available. Did Mr. Matthew Ward recommend as between what might be called sequence IXa and the present treaty plan?

Mr. FULTON: I do not think so. I am reminded he was present at various meetings when various possible sequences were discussed and never at any time did Mr. Ward take the position that he was opposed to the view of the other advisers, so I can only be right in assuming he was in agreement with the sequence that was finally developed. I am told that those present at the discussions cannot recall any disagreement.

Mr. HERRIDGE: You are quite sure he is in support of the present treaty?

Mr. FULTON: Yes.

Mr. BREWIN: May we now come to page 12, near the end of the page, where we come to a matter that has been discussed a good deal. I would like to discuss it further. We have the situation where a package, which included the High Arrow-Mica creek-Dorr-Bull river-Luxor complex, was the package being put forward by the Canadian negotiators. You say here that the United States attached some pretty stiff conditions but nevertheless agreed to the discussions on the basis of that package which eliminated Libby.

Mr. FULTON: That is correct.

Mr. BREWIN: And while it was still the basis of negotiation you say the British Columbia government decided that the Dorr-Bull river-Luxor proposal was not acceptable. How was that decision communicated? Was it a formal communication?

Mr. FULTON: The final clarification became evident at the meeting of the policy liaison committee held in Victoria about May of 1960, when we went for the last of several occasions over the ground *in extenso*. They produced maps and charts showing extensive inundations to support the view which they then communicated to us that they did not consent to the Kootenay diversion and to the major flooding that would occur.

Mr. BREWIN: We had reference made by one of the major witnesses before this committee to articles written by a journalist, Mr. Tom Gould. Is he a responsible journalist in your view?

Mr. FULTON: I found him so, normally, but he indulges, like all journalists in speculation, as we all do.

Mr. BREWIN: I know it is a relative term possibly but he gives an account, in an article in the *Victoria Times* of October 21, 1960, a rather dramatic account of the meeting of engineers, economists and politicians where he says:

One of the British Columbia representatives suddenly blurted out: "B.C. has no intention of constructing or allowing the construction of dams in the East Kootenay valley.

Then he says:

A hush fell over the room. Justice Minister Davie Fulton, Canada's senior negotiator, immediately called a recess.

Is this an imaginative passage or is there some basis to it?

Mr. FULTON: It is a good story but it never happened.

Mr. BREWIN: Did anything fairly close to it happen?

Mr. FULTON: No. I would say there was an occasion when there was some awkwardness because the British Columbia representative felt he could not press the negotiation on the Dorr-Bull river-Luxor as firmly as I wanted, but there was not at any time an open or outward appearance of disagreement.

Mr. HERRIDGE: There was no outward appearance of disagreement?

Mr. FULTON: Or even inward. We were all united. We were acting on the instructions of the policy committee. I think it was apparent to Mr. Bassett that his government was in the process of changing its views, but never at any time did he say "I will not continue with this", or never was it even necessary to call a recess to reconcile our views. When the British Columbia government made its decision, they communicated it to us in the manner I described. In the policy liaison committee session they told us what their decision was and their reasons for it. From that time onward the Canadian negotiators ceased to put forward the Door-Bull river-Luxor complex and told the United States that we withdrew that as part of the package. Then we worked around with other proposals with the aim I described in the memorandum of getting all our objectives in the best position notwithstanding the fact that we recognized we now had to accept Libby.

Mr. HERRIDGE: I have a supplementary question. Were provincial representatives present when negotiators representing the United States and Canada were giving consideration to this question?

Mr. FULTON: Yes.

Mr. HERRIDGE: Does that establish a precedent for negotiations with a foreign country so far as the responsibility of the federal government is concerned?

Mr. FULTON: I do not think so except in so far as negotiations involving a similar problem would come up. This negotiation was unique. I think I can properly use that word in that it involved a resource the control of which is primarily provincial. Secondly, it involved such a host of economics, technical and engineering questions in which the province must necessarily be intimately concerned that we felt that the proper thing to do, while maintaining federal responsibility and control of negotiations, was to associate the province with us from the outset and throughout. We did that both at the negotiating level and at the technical level.

Mr. BREWIN: I wanted to follow up with questions related to this problem. For this purpose I want to quote once again Mr. Tom Gould, but on this occasion he purports to quote you directly. I want to find out whether the quotation is accurate. This is from the *Calgary Albertan* of February, 1961.

I do not have the exact date in February. It is an article by Mr. Gould on "High Arrow versus Mica creek". He says this:

Justice Minister E. Davie Fulton, in a series of frank speeches in B.C. recently, put it this way: "Under our constitution, B.C. is the owner of natural resources lying within provincial borders,

And I think it is a statement none of us would disagree with.

and has therefore the right to designate which resources should be developed and in what way. This is the basic reason why High Arrow is included, and the major dams and diversion of the Kootenay river are not included in the treaty projects.

That purports to be in quotation. Would that be an accurate rendering of what you did say then?

Mr. FULTON: Yes.

Mr. BREWIN: He goes on to say:

He has also publicly admitted the salvage nature of the negotiations from that point: "B.C. having made these decisions, it was then the federal government's task to negotiate with the U.S. within the pattern thus determined... We then had to ask ourselves the final question, does this arrangement still represent an advantage to Canada?"

He goes on to add:

For the record, the federal government does believe, and quite rightly, that it negotiated a good deal for Canada "within the pattern laid out".

Does that accurately represent your opinion?!

Mr. FULTON: That is taken from a speech I made at the time the text was released. I have not the text in front of me, but I have no reason to believe that that is not taken from it. I still think it is an accurate statement of the position. If I were reconsidering it I might make this change and say that it became the responsibility of the federal negotiators to negotiate bearing in mind that the province was associated with us in negotiation.

Mr. BREWIN: I take it, then, that this establishes—as far as any pronouncement by an individual can establish—the proposition that if the province owns resources it has the right to dictate the pattern, as it says here, of the development that will take place.

Mr. FULTON: That is not quite what I said, Mr. Brewin. If you study it you will find that I said the province has the right to decide whether a certain pattern of development shall be followed. It is my view that under the constitution as it presently exists the federal government has no power to go to British Columbia and say, "You must have a Columbia river development along such and such lines". The province can say, "We do not want a Columbia development at all". There is no power vested in the federal government and in the arrangements of the constitution, as I understand it, to say that the Dorr-Bull river-Luxor diversion will be installed. If the province decides they will not have it, that, it seems to me, is the end of the matter as far as the federal government's power is concerned.

However, the federal government does have power to say that they can veto a certain pattern under the international rivers act, but the province cannot be forced to accept the federal government's pattern.

Mr. BREWIN: I do not think it would be profitable for you and me to become involved in a long constitutional argument.

Mr. FULTON: No, but that is what I was saying in that speech.

Mr. BREWIN: Nevertheless, I would like to put to you a paragraph in an article prepared by Jean Lesage, who was then minister of Northern Affairs and National Resources. This is contained in the *Electrical Digest* of July, 1955. He was discussing the Columbia river as a project in the future. At page 48 he says this:

According to the Canadian constitution, works built on rivers in Canada and having an effect outside the country fall under the jurisdiction of parliament, even if they are entirely located in one province.

Mr. FULTON: They fall under the jurisdiction of parliament to a certain extent, yes. As I have said, under the international rivers act we can prohibit them; we can say, "No, this is not a use we will permit on this international river". In my view, however, that does not mean that we can go to the province and say, "Here on your soil there will be constructed this dam", if the province does not want to see it constructed. It is a two-way operation. That is precisely why there had to be a co-operative development and agreement between the federal and provincial governments in regard to what projects should be constructed on the Columbia river.

Mr. BREWIN: I can see the political advantages and perhaps the political necessity of co-operation between the two jurisdictions. Are you prepared to go so far as to say that the parliament of Canada, under section 92 (10) (c)—works prepared for the advantage of Canada—could not have proceeded with a plan and declared this to be a work of public benefit to Canada?

Mr. FULTON: I said under the constitution presently existing and without such a declaration.

Mr. BREWIN: But that declaration is one that can be made under the British North America Act?

Mr. FULTON: It could be made, yes. The government of Canada could make such a declaration. But I would be interested to see if you would advocate that we should have done so and that we should have taken over the whole thing and done it ourselves.

Mr. BREWIN: I am not saying what I would advocate. I ask you if the government of Canada did not even consider, when it was faced with what has fairly been described as a veto by British Columbia, that it had some bargaining power in its own hand to make it a federal project.

Mr. FULTON: The government of Canada had sound legal advice and was well aware of rights and all the circumstances of the situation.

Mr. BREWIN: That is a very general statement.

Mr. FULTON: Yes, Mr. Brewin. I have already said we were aware that we could have made such a declaration and taken it over. We were also aware of the implications surrounding such a course of action including, to mention only one, the question of where we would sell the power.

Mr. BREWIN: I see; and, of course, as part of your policy you did not want to sell it in the United States?

Mr. FULTON: That is so.

Mr. BREWIN: But it appears to me, Mr. Fulton—if I may put it in this way, and you will correct me if I am wrong—that almost immediately Mr. Bennett or the representatives of the government Mr. Bennett headed, had said, "We will not permit the Bull river project and sequence IXa; we will not permit that", the federal government accepted that and proceeded at once to accept that and, as you have said, tried to fit into that pattern.

Mr. FULTON: What we did was to explore the question of a satisfactory alternative. I think that was our obligation. I think it would have been entirely

wrong to react to this situation by a declaration such as that which is implicit in what you are saying, and say to the British Columbia government, "Well, by God, if you don't, we'll make a declaration under 92 (10)." I think that would have been entirely wrong. What we had to do was examine the implications of the situation then created in order to see if we could arrive at an alternative that would still result in a good Columbia river development from the Canadian point of view. And we succeeded.

Mr. DINSDALE: May I ask a supplementary question, Mr. Chairman?

The CHAIRMAN: Mr. Dinsdale.

Mr. DINSDALE: Can Mr. Fulton confirm this little historical fact? I believe Mr. Lesage tried to implement the thesis that was quoted in the article in the form of legislation and that it was repudiated by parliament in 1956.

Mr. FULTON: I am reminded that the first draft of the international rivers bill as introduced in parliament did contain a provision in one of the early clauses, which was subsequently modified to make it merely the power to negate, not the power to compel.

Mr. BREWIN: I have just one more question along these lines.

One of the things I want to clarify appears on page 14 in the second paragraph of your brief:

Finally, what the treaty plan does is to make a Columbia river development possible. It became perfectly clear that if a sequence was insisted upon that included the major Kootenay diversion at the outset, there would not be any Columbia river treaty.

I want to clarify that. The reason for that is the firm view or the decision, as you have described it, of the British Columbia government?

Mr. FULTON: Yes.

Mr. BREWIN: May I turn to a different subject for a moment, that of diversion?

Mr. GELBER: May I ask a supplementary question on the previous question, Mr. Chairman?

The CHAIRMAN: Mr. Gelber.

Mr. GELBER: Mr. Brewin read a quotation of Mr. Fulton taken from an article written by Mr. Tom Gould:

"Under our constitution, British Columbia is the owner of natural resources lying within provincial borders, and has therefore the right to designate which resources should be developed and in what way. This is the basic reason why High Arrow is included, and the major dams and diversion of the Kootenay river are not included in the treaty projects."

In your brief on page 11 you say:

On this basis it was agreed that the Canadian package first put forward comprising High Arrow, Mica creek and the Dorr-Bull river-Luxor complex, met the test and should be further considered. It is significant to note that High Arrow was included in the Canadian proposal from the outset.

Mr. FULTON: Yes. I might admit to some inconsistency between this and what I am reported as saying in the earlier speech. If there is an inconsistency I would prefer the version now before you.

However, I was correct and am correct, I think, in saying that the prime movement in favour of High Arrow came from British Columbia. I want to make it clear that we did not say, "No you shall not have it", because again

all economic arguments from the very outset led almost inescapably to the conclusion that Arrow should be included. When it was included we found it had a very good purpose, a better purpose than I at any rate had appreciated when we first began to discuss it. It is true to say, however, that the prime insistence on its inclusion came from British Columbia. It is also true to say that there might have been a possibility of an acceptable package without Arrow if one had Dorr-Bull river-Luxor. I only say that this is a possibility. I do not say that it is a certainty. It seems to me that once the Dorr-Bull river-Luxor project is ruled out, two things are inherent: Libby is made inevitable; and we would not have an acceptable amount of storage and control to offer without High Arrow.

Mr. BREWIN: May I switch to a different subject for a moment, that of diversion? In the drafting and negotiation of the treaty the right to divert to the prairie provinces for irrigation and other purposes was considered, I take it, and was considered to be of some future possible importance.

Mr. FULTON: Certainly on the basis of my recollection of the discussion at the time, I do not think it was considered from the specific point of view of diversion to the prairies; it was diversion in general we were considering and the right to divert in general.

Mr. BREWIN: At page 18 of your brief you have pointed out—and I am looking at about ten lines from the bottom—that:

But diversion for consumptive use is specifically excepted from the restriction—

As it is, of course, under article 11.

—which means that diversion for consumptive use even during the term of the treaty can be as freely and fully exercised as the present law permits; and consumptive use is specifically defined to include irrigation and domestic purposes.

Consumptive use, as I might remind you, is defined in the treaty to include:

use of water for domestic, municipal, stock-water, irrigation, mining or industrial purposes but does not include use for the generation of hydro electric power.

The question I want to ask is this: do you recall whether attention was paid to the problem of what might be called mixed purposes, the problem of diversion, for example, which would take the water over the Rockies and put it in the South Saskatchewan river or other rivers where it would be used both for power and for irrigation and municipal purposes?

Mr. HERRIDGE: What is the name of the new witness, Mr. Chairman, who is now advising Mr. Fulton on this question?

Mr. FULTON: Mr. Chairman, Mr. Olson, of the Department of Justice, has come to assist me in my answers. He was a Department of Justice official who was with the Department of Northern Affairs and National Resources at the time the treaty was being prepared. At that time he was a technical adviser and I asked and received the agreement of the present government for him to be here to assist me in giving my answers today and to refresh my memory of the discussions at the time. Does that have the approval of the committee?

Agreed.

The answer to your question, Mr. Brewin, I think is that when diversion was considered it was considered generally but no specific suggestion involving a multipurpose use was before us. Indeed, I think I would be correct in saying

—and certainly from the point of view from which I examined it—that the interest primarily was in preserving the right to divert for consumptive use.

I come from the dry area of British Columbia, an area that also needs water for irrigation. We were not prepared to part with the right to divert the water and use it for that kind of purpose. It was with that type of general consideration in mind that we wrote in this exception in favour of consumptive uses from the restriction. We did not specifically have in mind a multipurpose consumptive use which would be, say, for irrigation or mineral or mining purposes and as well would include power generation; we did not specifically look at it from that point of view. I am satisfied that in exception to the restriction, as worded, we have so preserved the right.

If diversion is made for a genuinely consumptive use, if that is the purpose in mind and the purpose served by the diversion, it is no one else's business what we do with the water while it is on its way to that consumptive use.

Mr. BREWIN: Did this matter at any time become the subject of discussion with your United States counterparts?

Mr. FULTON: It was an assertion insisted upon primarily by Canada and readily agreed to by the United States. At the negotiating level it was not discussed in any detail until about the last session when we were going over the minutes of the previous meeting.

Mr. BREWIN: You say "it" was discussed. I have no doubt that the right of diversion was so discussed, but the specific point I am interested in is that there could be a riparian use where one diverts for local municipality irrigation within the basin itself; and there also could be a diversion which would cover a large area, as it would if one were to divert it to the prairies. If that were the case, it would cover many hundreds of miles and presumably would be used for a multiplicity of purposes, including consumptive and other purposes.

The point I am asking is whether this distinction between consumptive and riparian purposes within the basins—and diversion for that—was discussed and considered as against diversion for the wider purposes of which I am speaking.

Mr. FULTON: I do not know if I will really be answering your question if I say yes. We did not consider in detail the prospect of any diversion to the prairies. I think that is perhaps the best way in which I can answer your question. Indeed, Mr. Brewin, I realize I am in the realm, to some extent, of opinion and speculation here. We did not consider it in part because it never appeared to be a practicable possibility. Indeed, such studies as have been made subsequently—and, as I recall Mr. Martin's evidence, some studies made at about that time—seem to confirm that conclusion.

You talk of a diversion to the prairies from the Columbia, or this is implicit in the discussion. Such a diversion would certainly require the approval and consent of the provincial government. I doubt whether any provincial government would consent to such a diversion on the basis of their own economic interests. I said the Columbia river flows through the dry belt of British Columbia, a part of British Columbia where irrigation is an ever present consideration in people's minds. On that ground I doubt whether it would ever be permitted or become practicable. Even if it were consented to, it is my understanding that it is simply not economic to pump the Columbia water over the Rocky Mountains and into the prairie system. If a diversion were necessary on the prairies, I certainly hope the most economic way to do it would be studied. I hope it would be studied from the point

of view of the Peace or the Athabaska systems where you do not have to pump it across mountains, because they are there on the other side of the mountains.

Mr. BREWIN: I was interested in how far it was examined at the time.

Mr. FULTON: It was not considered in any detail.

Mr. HERRIDGE: This is a pause for advice.

Mr. FULTON: Well, the information I have just been given is this: My recollection is that we did consider the diversion generally, and our concern was to insure that diversion for irrigation and such purposes would be permitted without restriction. It was recognized by those who took part in the discussion that while it was not a matter of moment, it was recognized that the exception we got in our favour, was that we were permitted to make diversions out of the basin for consumptive purposes.

It was recognized that the exception was wide enough to permit it. But I do not mean to say that we had it as a conscious desire to preserve the right in order that the Columbia might be diverted to the prairies. We did not do it for that reason.

Mr. BREWIN: I have a supplementary question. You do not recall receiving by that time, perhaps at any time, a formal legal opinion. You know what that means: a statement of principles, a regular formal legal opinion, with the words of the treaty preserving that right of diversion for multiple or mixed purposes?

Mr. FULTON: No. We did not ask for one in those terms, so we did not get one. I have had placed before me the evidence of General Itschner, and I refer again to page 56 in the same volume that I referred to before which reads as follows:

Thus either country can use the waters of the Columbia river and tributaries for consumptive uses even though this may alter the flow of a stream where it crosses boundary, without obtaining the consent of the other country. This restriction, however, prevents diversion of water from the Columbia river and tributaries outside of the Columbia river and tributaries outside of the Columbia river basin for non-consumptive uses, of which hydroelectric power generation is of greatest concern.

He recognized that it could be diverted out of the basin for consumptive use. That is the United States interpretation of the breadth of the exception that we reserved in favour of consumptive diversion.

Mr. BREWIN: He does not deal with diversion for consumptive purposes but with the fact that you have the freedom to do it. He does not deal with the problem of whether diversion other than for mixed purposes is to be considered as a diversion for consumptive purposes. He does not discuss it.

Mr. FULTON: No, he does not. But let me give you an example of what we have the right to do. Suppose it were decided and felt to be economically feasible to divert the Columbia to the prairies for irrigation and such purposes to enlarge greatly the irrigated area of the prairies. It would obviously be necessary to have the power to pump water up over the mountains, and there would be no question about using that water to create power to get it out of the basin, when we were getting it out of the basin for consumptive purposes. I say as a matter of law and common sense, which I think usually coincide, that there is no question that such a mixed purpose would be within the terms of the exception.

Mr. BREWIN: Do you think it is also a matter of common sense that any diversion in the prairies for example would necessarily have to be used both to generate power as well as for these other purposes?

Mr. FULTON: Yes, you would not get it there if it did not generate power.

Mr. BREWIN: I do not mean power in order to get it over the mountains, but even when you do get it over, it is the only practical diversion.

Mr. FULTON: If in its course towards some other use it is used to generate power, I think it would be of no concern to the other country. We would not have to ask their consent, because we were making a diversion for consumptive purposes or use.

Mr. BREWIN: I have a new line of questions.

The CHAIRMAN: Go ahead.

Mr. CHATTERTON: Did the government of Saskatchewan ever make a recommendation to the policy committee indicating their interest?

Mr. FULTON: No, neither at the technical nor the political level.

Mr. BREWIN: Let us come now to the other accepted powers of diversion in the treaty mentioned in your brief, it is your view that because we have explicitly reserved the legal right to divert for power over the years, you are becoming more or less absolute at the end of the treaty period because we have used it, and that we do not need to worry about the fact that the development of Libby and all its consequences would build up a vested interest?

Mr. FULTON: No, I do not go that far. What I said was that we have reserved the right, but whether or not we exercise it is a matter of decision at that time. What we have done is to preserve the right in absolute terms, absolute and legally binding terms, and that again is recognized by the Americans in their interpretation of it. I come back, as far as I can, and state that I hope Canadians would hesitate to use the right freely to recognize their rights if it is in their interest at the time, and necessary to be done. This the Americans have now set out.

Mr. BREWIN: Would you not concede that the Canadians as well as the Americans will be using all the physical plants that will be developed here to offset their interest in the maintenance of the flow through Libby after the 60 year period is over, and that that is what is done?

Mr. FULTON: They may well do so.

Mr. BREWIN: Would not a radical later situation make this rate of diversion purely academic.

Mr. FULTON: They may well do that. I do not know if I would go so far as you suggest but at the present time Libby does confer advantages to Canada in terms of power in the west Kootenay plants and in terms of flood control and protection at Creston flats which we will enjoy for the duration of the length of time the waters are used in that way. But we have preserved the right. I do not say that we will ever exercise it, but we have preserved the right, so that if it should be the case, that it is clearly in our interest and to our advantage to make such diversion, we can. But we will take those factors into consideration at that time.

Mr. BREWIN: Do you not concede that the right can be an apparent hypothetical thing if in the meantime you create a situation which exercises it, and when the right becomes totally impractical?

Mr. FULTON: No, I do not agree with you that the right ceases to be a right—and I am surprised that as a lawyer you would take that point of view.

Mr. BREWIN: I take it as a common sense point of view, not as a lawyer.

Mr. FULTON: I do not think you are approaching it from either point of view. What will be done is to examine the advantages of a diversion and weigh them against the disadvantages. We cannot foresee now what will be the effects which will have to be taken into account at that time, but we will have the right, if we decide, if Canada decides at that time, that the advantages outweigh the disadvantages, Canada will still have the right to make a diversion. I am not suggesting for a moment we would do so without weighing the advantages and disadvantages, but what we are concerned with is to protect our right to do it.

Mr. DAVIS: In exercising this right are we obligated to pay damages for downstream claims?

Mr. FULTON: No, indeed. Anything that is done concerning Libby from this time forward, from the time they have given notice that they are going to build it, is done subject to notice that Canadians have an absolute right to take this amount of water away.

Mr. DAVIS: I mean in the existing circumstances of the Boundary Waters Treaty.

Mr. FULTON: Yes, I think so.

Mr. BREWIN: Under the McNaughton plan Canada would have storage high up in the system and would have unquestionably at the end of the treaty period freedom to divert; it would have control over the Canadian water at that stage if we had adopted that plan, or if it had been accepted.

Mr. FULTON: There would be no greater right of control than we have under the treaty.

Mr. BREWIN: I am suggesting it.

Mr. FULTON: I mean under the Columbia River Treaty. I say that we would have no greater right, at the time, under that plan than we will have now, at that time, under the treaty.

Mr. BREWIN: The treaty authorizes the construction of Libby. That was one of the major features.

Mr. FULTON: Yes.

Mr. BREWIN: I suggest that when Libby is constructed it will have the effect of creating vested interests both in Canada as well as in the United States. This means that any formal legal right to diversion will never likely be exercised.

Mr. FULTON: "Not likely", no. The advantages and disadvantages would have to be assessed, but the right would be there. Surely you would not deny that vested interests have arisen in connection with the American plants now on the main stem of the Columbia; yet it is asserted by those who argue in strength that we would lose the right to make Kootenay diversions; they argue that we have the right now to divert from the Columbia to the Fraser. I think they are right, although I think the Americans would have a claim for damage downstream. But how can those very people say that we would not have the right with respect to the Kootenay when we have it written right into the treaty.

Mr. BREWIN: We are building up a lot of Canadian vested rights by the development of Libby.

Mr. FULTON: I can go no further than to say what I have said before, that at the time when it becomes important to assess them, I imagine that Canadians, those in charge in both the federal as well as the British Columbia governments, would weigh the advantages against the disadvantages, and against the possible alternatives, and if they come to the conclusion that this thing is essentially in Canada's interest, they have the right to do it.

Mr. DAVIS: This will be only for those who have created vested interest in the United States once the 60 years are up.

Mr. FULTON: Those vested interests would stop unless continued by the treaty. I do not see that it makes them non-vested interests. The nature of the interest is determined now, and it would be an interest in addition as it were, to the interest acknowledged at any time.

Mr. DAVIS: Viewing the alternative at this future point in time, will it be adapted to some part of the capital cost?

Mr. FULTON: No.

Mr. BYRNE: I have a question of privilege. In view of the fact that I understand Mr. Brewin has another series of questions, and in view of the fact that it will be impossible for me to attend this afternoon's sitting, I wonder if Mr. Brewin would mind deferring in my favour until later, so that I may have an opportunity to ask a few questions before adjournment.

Mr. BREWIN: I think I would be through in five minutes. I have just one specific question.

The CHAIRMAN: Let us permit Mr. Brewin to complete his questions.

Mr. BREWIN: I am prepared to yield to Mr. Byrne rather than have him miss this last opportunity.

Mr. GELBER: Let us stay until Mr. Byrne has finished.

Mr. HERRIDGE: Pause for advice.

The CHAIRMAN: I think these statements are being unfair to the witness.

Mr. FULTON: I never mind admitting that I call for advice. I only wish that others sometimes would do the same thing. What has just occurred is that Mr. Olson has drawn my attention again during the course of this discussion to the provisions of article XVII(1) which reads as follows:

Nothing in this treaty and no action taken or foregone pursuant to its provisions shall be deemed, after its termination or expiration, to have abrogated or modified any of the rights or obligations of Canada or the United States of America under then existing international law, with respect to the uses of the water resources of the Columbia river basin.

Again, in specific form, in another portion of the treaty, we have reinforced the rights which will arise at the end of 60 and 80 years respectively.

Mr. BREWIN: I would thank Mr. Olson for calling your attention to article XVII(1) which you have just read. But on page 21 of your brief you make comment. Would you like to make a statement looking at it? You say at page 1 of your brief:

The important thing is that we fought for, and won—against strenuous United States opposition—a reversion to the position of the law as it is under the boundary waters treaty upon the termination of the Columbia river treaty.

Again I presume in that sentence you are referring to article XVII (1)?

Mr. FULTON: No, I was referring there, Mr. Brewin, to article XVII (2) and (3) where the point is specifically set out, and in the passage from my brief which you quoted I refer to the right as it will arise with respect to diversion from the Columbia to the Fraser. We rely primarily on the Boundary Waters Treaty which reinforces that right. But with respect to the Kootenay diversion we don't want to be in a position of having to rely only on the Boundary Waters Treaty but rather on the specific provision of the Columbia river treaty where the Americans have recognized that we have that right in absolute form. So

we are in a better position with respect to making Kootenay diversion from the Columbia than we would be with respect to making a diversion from the Columbia into the Fraser at that time.

Mr. BREWIN: Under article XVII (2) we would then revert to the position under the Boundary Waters Treaty except in so far as there is some specific right conferred by the Columbia river treaty?

Mr. FULTON: That is right.

Mr. BREWIN: The Boundary Waters Treaty is subject to termination.

Mr. FULTON: On one year's notice.

Mr. BREWIN: And Article (1), referring to subsection (1) of article XVII, refers to the fact that after the termination or expiration of the treaty:

Nothing in this treaty and no action taken to foregone pursuant to its provisions shall be deemed, after its termination or expiration, to have abrogated or modified any of the rights or obligations of Canada or the United States of America under then existing international law, with respect to the uses of the water resources of the Columbia river basin.

I take it that word "then" refers to the "then" date at which the treaty is terminated.

Mr. FULTON: Yes, that was the intention, and I think that is what it does.

Mr. BREWIN: Do you conceive that perhaps under the impetus of the views of the American government and of international law in respect of the absolute right of diversion of the upper stream party, the absolute sovereign right is being modified all the time, and it is quite possible that the rights which previously had been recognized will then have been whittled away to some considerable extent?

Mr. FULTON: It is possible there may be changes in international law regarding the right of diversion as well as the process of settling claims to which we would be a party, I suppose. But at the present time the international law is set out in the Boundary Waters Treaty.

Some of this wording and some of the other wording in the section were taken to be a recognition of the fact that the Boundary Waters Treaty could be terminated by either country upon giving one year's notice. That is why we later on, at another point, say that so long as the Columbia river treaty is in effect, neither country can abrogate the Boundary Waters Treaty, or if they do so, at least article II of the treaty stays in effect. So we insure that at the point of time when the Columbia river treaty might be terminated we are then in the same position with respect to the Boundary Waters Treaty, and that we have to have at least one year's notice before it can be abrogated. Otherwise we are convinced, or rather we recognize the possibility that during the currency of the Columbia river treaty, there might come about a termination of the Boundary Waters Treaty, and then with respect to diversion from the Columbia into the Fraser we would find that within the period of the Columbia river treaty, that our rights under the Boundary Waters Treaty had been in fact removed. We state in this article, and I think this is the right article, that you will not be able to do that to us, and even if you want to terminate the Boundary Waters Treaty in accordance with its provisions, the benefits, as we see them, will remain in effect for one year after the Columbia river treaty terminates. To that extent we may then divert the Columbia into the Fraser.

I realize this is a limited period but we will be no worse off then than we are now. We know that we will not be placed in a better position to negotiate at the conclusion of this treaty than we are now. That is something that the United States negotiators would never agree to and they made that perfectly clear.

Mr. BREWIN: Mr. Fulton, are you familiar with the proposal Mr. Kearney, a legal expert, put to the United States Senate to the effect that this treaty itself may have the effect of enlarging upon the recognition of wider rights to downstream power in respect of this matter of diversion?

Mr. FULTON: No. We feel that the treaty speaks only in respect of the particular river system with which we are dealing. We felt that we were establishing a very useful pattern that could be followed in the future. We are not by this fact enlarging the general law.

Mr. RYAN: Mr. Chairman, I should like to ask a supplementary question in respect of article XVII particularly and the treaty as a whole.

A previous witness, and I believe it was Mr. Bartholomew, stated that it was his opinion that this treaty contained United States wording. What can you say in this regard?

Mr. FULTON: I would have to say that many provisions contained in the treaty were included at the insistence of Canada, and there are an appreciable number. Their inclusion was readily agreeable.

Mr. RYAN: Could you comment in respect of article XVII in particular?

Mr. FULTON: I should like to state that we had strenuous discussion before that article was agreed upon.

Mr. RYAN: Is the wording more Canadian than United States?

Mr. FULTON: I should state that it is good Canadian wording.

Mr. BYRNE: Mr. Fulton, I am very interested in the remarks you made yesterday regarding the part General McNaughton played in the discussions and negotiations which took place at the various committee meetings. I understood you to say that General McNaughton took part in 11 of the 13 technical liaison committee meetings?

Mr. FULTON: He took part in 11 of the 13 policy liaison committee meetings.

Mr. BYRNE: He also took part in 26 of the 33 cabinet committee meetings; is that right?

Mr. FULTON: Yes.

Mr. BYRNE: Throughout those meetings did General McNaughton consistently oppose the Libby project?

Mr. FULTON: General McNaughton made it clear from the outset that he felt the inclusion of the Libby project would be disadvantageous as compared to other arrangements that could be made. At no time prior to the signing of the treaty did he say that the treaty with the Libby project included should be rejected.

Mr. BYRNE: Of course, the same applies to the inclusion of the High Arrow project which was, as you have stated, a part of the negotiations almost from the beginning?

Mr. FULTON: Yes.

Mr. BYRNE: General McNaughton continued to take part in the negotiations on that basis?

Mr. FULTON: That is correct. I think the general must speak for himself, but I am quite certain, on the basis of my very strong recollection and impression, that he was much more vigorously opposed to the Libby project than the High Arrow project, although he does not regard either of them with a great deal of favour.

Mr. BYRNE: You have stated at page 16 of your presentation that the negotiations continued in accordance with the pattern outlined above, having regard to the various committee meetings, and that High Arrow had been an integral part of the sequences.

Mr. FULTON: Yes. General McNaughton was a valued and co-operative member of the various teams from the inception. I want to make it very clear that while his views were known he assisted and co-operated fully throughout the negotiations. I am not being patronizing when I say this. Members of his staff were also present at all times, and at all stages and were equally co-operative.

Mr. BYRNE: I should like to read a portion of the second paragraph appearing at page 16 of your presentation. At this point you have stated as follows:

—on January 8, 1961, as a result of the concerted and conscientious efforts of negotiators, advisers and draftsmen, the draft of a treaty in final form was produced which the negotiators unanimously agreed to recommend to their respective governments.

On page 17 of your presentation you state in the second paragraph:

I wished simply to ensure that I was correct in my understanding that this was also the view of all the other negotiators and the advisers and that they also felt the treaty should be recommended. All agreed. General McNaughton said that while he was opposed to certain of the physical aspects of the treaty, he did not oppose the recommendation to cabinet.

What does that statement mean, "he did not oppose the recommendation to cabinet?"

Mr. FULTON: I think that means precisely what it says, that he was not urging that it be recommended.

Perhaps I should go back and sort of rehearse the discussion which took place. I said that I was prepared to recommend this treaty, and wanted to make that clear to all those who were present. I indicated that I was prepared to do so on the basis of my responsibility and on the basis of the answers to two questions; does it represent a net advantage and does it represent an advantage we could not gain without the treaty? On the basis of the answers to both of these questions which were yes, I was prepared at that time to recommend the treaty to the government but I wanted to know whether there was anyone who felt that it should not be recommended. It was in answer to that question that General McNaughton said, as you know, he felt very strongly against certain physical aspects of the treaty. He stated he had not altered his views but could not oppose the recommendation. I did make this statement yesterday. General McNaughton a few minutes later went on to say, and I did not catch this very clearly, but the implication was: "I must, however, preserve my freedom of expression."

Mr. BYRNE: This was the final meeting at which you were going to make your decision to recommend this treaty to the cabinet as a result of which, if you were sufficiently persuasive, a draft treaty would be signed. I suppose all the negotiators including General McNaughton understood that situation?

Mr. FULTON: I think all those individuals present understood that fact that I would recommend it to cabinet immediately after I made my presentation, and I called this meeting because, as I said in fact at that meeting, this was the crux of the matter, and if I go into the cabinet meeting and recommend that we should adopt this treaty I am quite satisfied that the government will accept my recommendation and we will have a Columbia treaty as it is drawn. I said: "I am going in there to make this recommendation but I want to be certain there are none who feel I should not do this." They all indicated, with the exception of General McNaughton, that they wanted me to do so. General McNaughton said: "I cannot oppose your doing this."

Mr. BYRNE: General McNaughton at that meeting did not use the highly descriptive words which are now being used such as "sellout"?

Mr. FULTON: Most certainly not.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I should like to ask a supplementary question. Mr. Fulton, you do take the position that General McNaughton's recollections were incorrect when he told this committee on April 22 in answer to a question put to him by Mr. Macdonald in these words, and he was quoting:

"At a final meeting with our technical advisers attended by General McNaughton—who had been one of our close advisers throughout—I personally asked each and everyone his view. Not one of those present opposed the recommendation that the treaty should be accepted and signed." Is that statement true or false?

Mr. McNAUGHTON: It is not true because there is more to it than is indicated in those documents. The occasion to which I think Mr. Fulton is making reference I would think was a meeting of the Canada-British Columbia policy liaison committee. On that occasion I refused to join in making a recommendation on the subject to the government of Canada. Later at a meeting with our ministers, I spelled out my reasons in considerable detail.

Mr. FULTON: Mr. Cameron, what I have had to say this morning and yesterday I confirm as being absolutely accurate. I have refreshed my memory. I have discussed this with a number of others who were present at the time and they confirmed my recollection as being correct. They informed me that they discussed this situation with others from British Columbia who were present at the time and who confirmed that my recollection was correct. I did not ask General McNaughton or any other of the advisers whether they joined me in a recommendation to cabinet. I said: "I am prepared to make that recommendation. I am going to make it in a few minutes but I want to know if any of you oppose my making the recommendation." That is the question I put to them. It was in answer to that question that General McNaughton said: "I do not like this but I cannot oppose it." That is the effect of what he said.

Mr. MACDONALD: Mr. Chairman, just before we leave our consideration of this point, did General McNaughton ever express to you his view that the draft of the treaty plan was immoral?

Mr. FULTON: No.

Mr. BYRNE: Mr. Fulton, on January 8, could you reasonably have expected, in so far as your discussions with the province of British Columbia were concerned, that the treaty could have been ratified say within six months or a year? Was there a reasonable expectancy in this regard?

Mr. FULTON: Certainly we could reasonably expect that it would be ratified within a year. I should like to make this clear and I do not want to be unfair. It is three or four years since these events took place, but the British Columbia government did state—and I come back to this subject because of what Mr. Davis said yesterday, and while I said this in answer to his question, I only said it once and perhaps the implication was lost—that with respect to the terms of the sale of the surplus portions of the downstream benefits it did want at least an initial price settled before or at the same time as ratification. They were quite prepared to leave the situation unsettled in that respect until after the signing. They made this clear during negotiations, and we said that it was clear that this could be done and would be done. We stated that we would not ratify the agreement until we had concluded negotiations with the

United States authorities in respect of that point so that an exchange of notes on this matter could be made simultaneously with the actual ratification.

It is important to know that in the scheme and proportion of things this was a relatively minor issue but we intended that it be resolved before ratification. Therefore, we knew that there would be some delay. There were certain engineering studies which had to be completed for confirmation of the preliminary findings. These things had to be completed, but we expected that they would be completed certainly within a year.

Mr. BYRNE: It certainly was your understanding and the understanding of all those who participated in this committee meeting that once you recommended this draft treaty to the government the signing of the draft treaty was to be anticipated?

Mr. FULTON: That was most certainly a clear understanding in everyone's mind. In fact that is why I asked the question. This was the last occasion they would have the opportunity of speaking up, and they should speak up then. That was exactly why I held the meeting.

Mr. BYRNE: How many months lapsed between that meeting, the signing of the treaty, and the occasion upon which General McNaughton made public statements opposing the treaty?

Mr. FULTON: I think General McNaughton made his statement in April of 1962, so the time lapse would be just over one year.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. Chairman, I should like to ask a supplementary question.

Mr. BYRNE: The time lapse would be approximately a year?

Mr. FULTON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Was the government constrained in presenting this treaty for ratification by deliberate delay as a result of public meetings that might have been held such as the one chaired by Mr. Byrne at which General McNaughton presented his objections?

Mr. FULTON: I do not wish to suggest that we were insensitive to political considerations.

Mr. BYRNE: My line of questioning is not going to be disrupted.

Mr. FULTON: The only reason for a delay, so far as we were concerned, as I recall, was that we had not been able to resolve the differences that arose subsequent to the signing between ourselves and British Columbia.

Mr. BYRNE: When General McNaughton stated that he wanted to retain freedom to act in apparent opposition to the treaty what did you anticipate as his intention?

Mr. FULTON: As a result of the exchange I have outlined I understood that General McNaughton wanted to be free to express his criticism in respect of certain aspects of the treaty, and I thought he had in mind—and I think this is the only conclusion one could arrive at as a result of what was said—that he wanted to reserve his right to state that he opposed the Libby project and perhaps that he was not happy about the inclusion of the High Arrow project. At no time on the basis of what he said, or on the basis of the part he played during negotiations up to that time, could anyone have come to the conclusion on any logical basis that he was going to condemn the whole treaty in the terms he used.

Mr. BYRNE: Since you expected to have this matter come before parliament, or at least ratified within a year, you could have assumed that the matter would have been before a parliamentary committee within six months; is that right?

Mr. FULTON: It could reasonably be expected that it would come before a parliamentary committee within a year, yes. I anticipated on the basis of what General McNaughton then said that when he was called as a witness he would make clear his views with regard to the Libby project, and these other projects, in terms of suggesting that we might have had a better treaty in some other way. I did not relish this prospect, but it was acceptable, it seemed to me, if he felt that strongly about the situation. As I say, at no time up to then, until he made his statement in April of 1962, had I any reason to suppose that he felt about this treaty as I now must assume he feels in view of the terms he has used.

Mr. BYRNE: You would have had the right to expect that General McNaughton, in coming before the committee as the Canadian chairman of the Canadian section of the International Joint Commission, would not be all out in opposition to the treaty?

Mr. FULTON: Mr. Byrne, I do not intend to make personal comment in any way in respect of what has transpired. I can only repeat what I have said, that I would have supposed that if General McNaughton felt about this treaty as he now suggests, that it should be totally condemned and that it is completely bad for Canada, he would have said so during the course of negotiations. I should have expected him to state: "I am opposed to continuing negotiations on this basis and will have no further part in these negotiations, and advise you to drop it."

Mr. BYRNE: He did not say he would oppose your recommendation?

Mr. FULTON: He did not say that at any time.

Mr. BREWIN: Mr. Fulton, if General McNaughton made it clear that he was against Libby and High Arrow, and they were the vital core of the treaty arrangement, how could he possibly be against the treaty?

Mr. FULTON: I did not ask General McNaughton if he was for the treaty or in favour of my recommending it. I was asking him if he thought I should not recommend it. It is perfectly possible to prefer to wish strongly that the treaty had taken a form or forms other than that which it did and to think it would have been more in Canada's interests had it done so and to feel that strongly, but to say, as indeed General McNaughton and others did at or about this time, "I do not like it much but I certainly think it is the best we could get." As I say, I feel it is much better than that. Then, when you come to the conclusion that on balance the net advantage is substantially in your favour, I felt it should be recommended, even though I felt, and then it became obvious that General McNaughton felt, we could have had a better treaty. That was my impression.

Mr. DAVIS: Could I ask a supplementary question? Could General McNaughton have had any expectation that major changes could be made in the treaty during the proceedings of the external affairs committee such as we have now?

Mr. FULTON: It might be. That I cannot answer for General McNaughton. I can only answer that my own conclusion, which I came to on the basis of evidence available to all the others, was that we had exhausted this possibility. Mind you, while we had been negotiating for a year during the formal treaty negotiations, this was under study since 1944 and other intensive studies were going on prior to our actual negotiations. I therefore felt, and I still feel, that we had exhausted the possibilities by way of analysis, study and so on, and that this treaty was—I am going to say this and I want to be allowed to go on—the best that Canada could get, and that this Treaty represents a substantial net advantage to Canada.

Mr. DAVIS: Would the government at that time have contemplated any substantial changes during the committee stage?

Mr. FULTON: No, because we had concluded negotiations with the United States.

Mr. BYRNE: Your terms of reference would have been essentially to have the committee discuss it and recommend it or reject it?

Mr. FULTON: I do not know that I would put it in those terms. This committee must decide its own views with respect to its terms of reference, but certainly we would have regarded any recommendation for substantial alterations as a personal defeat involving my personal resignation as minister. I felt and still feel that we negotiated this treaty intensively and that it was a very good treaty. I would have been in the position of wanting it to be adopted, and if the committee in effect rejected it, or made such a substantial amendment that in effect would have rejected it, I would have had to resign.

The CHAIRMAN: Could we allow Mr. Byrne to follow his course to its conclusion?

Mr. BYRNE: Of course the evidence is there. There is no question but that your government was responsible for the negotiations up to within fourteen months ago, so that anyone making mention of what transpired two years ago would be speaking about your administration.

Mr. FULTON: The sixty days of decision have gone by. They seem long in some ways and short in others.

Mr. BYRNE: I have an article in the *Toronto Telegram* written by a journalist who appears to have some knowledge of engineering. I wish to quote one paragraph.

The CHAIRMAN: Would you identify the journalist?

Mr. BYRNE: James Ripley, believe it or not. It reads:

For two years the government has tried desperately to justify the treaty. They have lied, exaggerated, misled and conceived arguments that border on fantasy.

What would be your impression of such a statement?

Mr. FULTON: That is totally unwarranted and grossly exaggerated. I think Mr. Ripley is the author of a thing called the "Columbia River Scandal". It is the article which is scandalous, not the treaty.

Mr. BYRNE: Mr. Chairman, before terminating my questions I would like to ask, on a point of privilege, whether the Chairman does not think it advisable, in respect of this article, that Mr. Ripley be allowed the privilege of the committee to sit here before the committee as he has done.

The CHAIRMAN: He was here simply as an adviser to General McNaughton. I do not think he answered any questions.

Mr. BYRNE: But he certainly enjoys the same privilege as any other Canadian who wishes to bring these matters before the committee. I suggest that the committee ask Mr. Ripley to come before this committee and prove the statements he has made. I believe it is a contempt of a committee to make these statements outside and not to appear here. I feel that something should be done with respect to this and soon.

The CHAIRMAN: I believe that we have the pleasure of having General McNaughton appear on May 15.

Mr. BYRNE: This is not General McNaughton's statement.

The CHAIRMAN: I appreciate that, but prior to appearing on the first occasion General McNaughton asked that Mr. Ripley be allowed to accompany him here at the desk, so I presume Mr. Ripley will be back with General McNaughton on May 15. Perhaps the committee could then take this opportunity to present questions to General McNaughton's adviser.

Mr. HERRIDGE: I have a supplementary question.

Mr. FULTON: I should like to complete the answer. I think I should add at this stage that I said the article was scandalous, not the treaty, and I repeat that. I made the statement in those terms primarily because I have had considerable discussions with Mr. Ripley in the past about this treaty. It is not as though he did not know the points of view from which we arrived at the decisions which are now reflected in the treaty. I went into it with him in some detail. That was at a time when his magazine had decided to publish an article contributed by General McNaughton, and Mr. Ripley, very fairly as I thought, said he would like me to have the opportunity of publishing the comment or reply, which I did. It was in the course of discussions leading up to that article that, as I say, I went quite fully with Mr. Ripley into why the treaty came out the way it did. I recall saying in effect that I sympathized and understood the point of view of those who felt so strongly in favour of other things that might have been in this treaty, but I gave him reasons why they were not in the treaty and why I felt very strongly that the treaty as drawn up still represents very advantageous arrangements for Canada. I did my best to explain clearly the significance of the provisions some of which I discussed in my submission yesterday with regard to diversion and so on. Therefore, I am not in the least disturbed that I have been quite unable to persuade Mr. Ripley to my point of view. I am disappointed, but who am I to say that everyone has to agree with me? I am surprised to find him use the terms he does, and which you have quoted, and that is why I said this is a scandalous article.

Mr. BYRNE: Then, to ensure Mr. Ripley does appear before this committee in an endeavour to substantiate these allegations I suggest that the committee invite him to attend.

The CHAIRMAN: If the committee invites anyone to attend, then we have to pay their per diem assessment rates.

Mr. BYRNE: But I think these are very serious allegations and the committee should hear from him.

Mr. BREWIN: Mr. Chairman, what are we talking about?

The CHAIRMAN: I think someone had a supplementary question.

Mr. HERRIDGE: I did. I would like to ask Mr. Fulton, did General McNaughton attend any meeting of the cabinet or meet with cabinet ministers shortly after the events of which you have been speaking in which he gave his strong opposition to the treaty.

Mr. FULTON: At no meeting at which I was present nor that I heard of did General McNaughton communicate to cabinet directly or through committee any condemnation of the treaty such as he has uttered since April of 1962.

Mr. HERRIDGE: Did General McNaughton present his views in respect of the treaty?

Mr. FULTON: Well, yes.

Mr. HERRIDGE: To the effect that he was opposed to Libby, the High Arrow and other aspects of the treaty?

Mr. FULTON: Certainly not between that meeting and the signing of the treaty.

Mr. HERRIDGE: You say not between?

Mr. FULTON: Not between the meeting we have referred to on January 8 and the date of the signing of the treaty on January 17. That is, not to my knowledge. When I say that, if he attended such a meeting I do not know of it because it certainly never came to my attention.

Mr. BREWIN: Mr. Chairman, I have a supplementary question.

Mr. FULTON: I do not say it would have prevented us signing; all I am speaking of is the attitude as I understood it at the time.

Mr. BREWIN: I have a supplementary in respect of this Columbia river scandal to which reference has been made. The witness has said the scandal is not the treaty but the article. Is there anything in the article which is particularly scandalous? I know it represents a very strong point of view which is held not only by Mr. Ripley but by others. But is it particularly scandalous?

Mr. FULTON: I was associating the article with the language quoted. Perhaps I should have said the approach.

Mr. BREWIN: It is not, in my opinion, particularly scandalous to write an article critically evaluating a treaty.

The CHAIRMAN: I do not think this is the time to go into an article published in a magazine. The members will be given every opportunity to consider this recommendation in steering committee. Perhaps we can leave it until we have the privilege of having General McNaughton back with us, at which time we presume Mr. Ripley will be available.

Mr. BREWIN: I do not see how you could refer to the article as being scandalous. I wish you would assist us and tell us what it is all about.

Mr. FULTON: I have spoken already on that. I strongly disapprove of the article because it makes an assertion, as I said yesterday, in respect of certain facts when the treaty contains provisions to the contrary, which has been drawn to Mr. Ripley's attention. I am at a loss to understand people saying that things are such and such when they are clearly not so.

Mr. GELBER: It is no more distorted than the article in the *Financial Times*.

Mr. FULTON: The article, combined with the words given by Mr. Byrne, are scandalous. If the word is to be used it should be used in respect of what is being said and not about the treaty.

Mr. KINDT: Mr. Chairman, I suggest we adjourn until 4 o'clock this afternoon.

The CHAIRMAN: I was going to suggest we meet at 3.30 p.m. There are reasons for this. Because of the importance of our witness I would hope that it would be agreeable to the members to meet at 3.30 this afternoon.

Some hon. MEMBERS: Agreed.

The CHAIRMAN: Thank you.

AFTERNOON SITTING

TUESDAY, May 12, 1964.

The CHAIRMAN: Gentlemen, I see a quorum. Mr. Gelber is first.

Mr. HERRIDGE: On a point of privilege; Mr. Byrne has raised a very serious problem for the committee in suggesting that any editor or person who says the government has lied should be called before the committee. I have extracts from several editors from various papers. What shall we do with this? If we call one, we should call them all.

The CHAIRMAN: Mr. Herridge, what has been said will be considered by the steering committee which, I believe, meets tonight. Perhaps the members of the steering committee will give some consideration to that.

Mr. HERRIDGE: We must be fair to them all.

The CHAIRMAN: We are not a court of law, and I think we understand that people are free to express themselves as they see fit in public matters.

We still have Mr. Gelber.

Mr. GELBER: Mr. Fulton, in your brief and again in your evidence which his committee has found most helpful indeed, you said that the first plan which Canada put forward included Bull river-Luxor and the High Arrow and Mica. Then, the reason it was changed was that the British Columbia government did not want the Bull river-Luxor complex to be included. Could you tell us what their position was in this matter?

Mr. FULTON: Yes. I think, to be fair, I should say that is the primary reason. It was the direct reason why the change was made; but in my submission I did say—and I think I should emphasize it—that it was not certain that the United States would accept it; they were prepared to discuss it. The reason given by British Columbia for this change ran something like this—and I will summarize, but I think I can do so accurately—this Dorr-Bull river-Luxor dam complex and diversions create a lake in the east Kootenay valley 150 or more miles long, a new lake instead of a river; it creates a massive lake and thus constitutes a major barrier or obstacle to east-west communications in that area. That was one of their primary reasons. Another was that the land in this area, the acreage, to be flooded would be very substantial; an area of 6,000 acres and land which they contended had great potential agricultural use. Thirdly, and closely related, they said this is not the only source of power in British Columbia and not even, they said, is the Columbia river the only source; there are other sources of power which can be developed and we therefore are not prepared to pay the price to get Columbia river power by inclusion of Dorr-Bull river-Luxor; we certainly are not prepared to do it now. I think that is a fair summary of their position.

Mr. GELBER: Would you say if that had been proceeded with, it would have been necessary to build the dams for flood control purposes many years in advance of the requirements for power which would have affected the economic development of the benefit for Canada?

Mr. FULTON: I think substantially you are correct in what you say. Dorr-Bull river-Luxor is not, of itself, a producer of power available for market; that is not its primary purpose or use. It is important as a storage; its main purpose is to store and divert the water around through the Columbia. Therefore, it does not become a significant producer of power until that water hits the dam at Mica.

Mr. GELBER: Is the economic factor also an important consideration?

Mr. FULTON: That was the British Columbia view; that is, that they would be involved in a heavy expenditure because it is not an inexpensive project, and that this would not be warranted especially at this time in terms of the production which produces it.

Mr. GELBER: Which seems to be a reasonable objection.

Mr. FULTON: The United States began to accept this plan conditional on the supply of 275 megawatts of power to replace the power loss at Libby, and they wanted it within a time limit, and at a price which, if they would not judge, would have been very disappointing. I do not know whether or not they would have modified that position. They appeared to be adopting stiff conditions, but I felt we had good hope of negotiating to an agreeable conclusion; but before we could proceed to that point the British Columbia government met and communicated its position to us. The United States was prepared to accept *quid pro quo* for Libby. They were prepared to discuss it and negotiate and the British Columbia government felt the compensation asked by the United States was too high. That was a factor in our minds, although we could not have been certain about it because we had not completed our negotiations to see exactly what compensation would be insisted on by the United States.

Mr. GELBER: But there was substantial merit in British Columbia's decision.

Mr. FULTON: There were good and sufficient grounds as it occurred to them. The federal negotiators at that time would have been prepared to negotiate further in the hope of getting Dorr-Bull river in, but we could not say at that time that British Columbia did not have a case. They said, we feel these grounds are important and we therefore take this position. Our main regret was that they had not taken that position earlier, because it was an awkward position to be in as negotiators.

Mr. RYAN: At that time, was the unsightliness of the drawdown in the valley itself mentioned as a real factor in their decision against the flooding of the high valley as against the Arrow lakes valley which was more of a canyon?

Mr. FULTON: At this stage I do not remember whether that was one of the major objections with regard to Dorr-Bull river-Luxor. It has been used as an argument against Arrow and its proximity to Revelstoke. My impression is that it was not advanced by them as a major reason for their decision.

Mr. RYAN: Would the drawdowns be at all comparable between the two valleys?

Mr. FULTON: Yes, comparable in height, but different in shape.

Mr. RYAN: In the broader valley you would get a much more unsightly condition?

Mr. FULTON: There would be more surface; I suppose that would be true.

Mr. GELBER: If we went ahead with our proposal without Bull river-Luxor and with the High Arrow dam and Mica, and those intangibles which we have been discussing, there would be less destroyed by reason of the exclusion of the Bull river-Luxor, and less area flooded.

Mr. FULTON: Yes, a considerably smaller acreage because of the shape of the Arrow lakes valley which is a beautiful valley. For the most part it is steep and precipitous with some very beautiful beaches where the rivers come out and from a delta. They are gems, it is true. Generally speaking you can get a large quantity of storage without flooding such a large surface at Arrow because you are using the steep sides of an existing valley.

Mr. HERRIDGE: You know, Mr. Fulton, that the reports of the Department of Agriculture indicated that the quality of the soil to be flooded in the eastern Kootenay is equal to that to be flooded in the Arrow lakes valley.

Mr. FULTON: I am not aware that you can make that categorical assertion on the basis of the studies made. As I read it, there are differences of opinion.

The CHAIRMAN: We are going pretty far astray.

Mr. GELBER: My understanding is, Mr. Fulton, that by reason of our agreement with the United States, a high priority was agreed upon in the negotiations for our installations.

Mr. FULTON: All our installations were awarded a first added position.

Mr. GELBER: Which is a great benefit to Canada.

Mr. FULTON: Indeed; and without which Mica would not have been an economic project.

Mr. GELBER: So that also was an important compensation for Canada.

Mr. FULTON: It was an important consideration to Canada, yes. Compensation to Canada perhaps is not quite the right word. It is an important consideration for us to get our storages in first added position.

Mr. GELBER: We have the complex that we advocated now, and it has become the treaty. You are satisfied with that complex as against the original proposition? I understand you said this morning that you were equally satisfied with this.

Mr. FULTON: I feel it is a perfectly fair alternative. The two are alternatives. Each has some disadvantages which the other does not have and each has advantages which the other lacks. However, they are capable of being weighed and balanced as alternatives. They both possess advantages with regard to the treaty and treaty projects. They now are in the form of a treaty and become advantages to Canada. It was on that basis I was prepared to accept them gladly, and recommended them to my colleagues.

Mr. GELBER: You feel that Canada's interest was protected, and that we have not sold Canada, or given any special advantage away?

Mr. FULTON: On balance; but I never have maintained and do not wish to maintain now that the treaty is in every respect as we would like to have it if we were free to write our own treaty, but we had to negotiate a treaty and when you negotiate between two sovereign countries one of them never gets it all its own way. As I said before, both parties to the treaty, the United States and Canada, realized that if they approached this on the basis that they would get it all their own way, there never would be a treaty. Each must be prepared to make concessions. Each, however, reserved the right in its own national interest to weigh the benefits and see whether the concessions they had to make in order to gain a credit were so decisive that the net of advantage lay against them. I do not see how you can get a treaty such as this except by negotiations. Therefore, it would be false for me to say that we did not have to make concessions, and it would be equally as false for the United States to say the same thing, and they have not attempted to claim it.

Mr. GELBER: You think it is good for both?

Mr. FULTON: Yes.

Mr. GELBER: I appreciate from what you said yesterday that you did not come here to debate these issues. I raise this matter tentatively, but it has been raised by others in rather serious fashion. With regard to the sale of downstream benefits, my understanding was that the original arrangement was that some of the downstream benefits would be sold.

Mr. FULTON: Yes.

Mr. GELBER: So, you did not object to the principle of sale of downstream benefits?

Mr. FULTON: Not while they are genuinely surplus.

Mr. GELBER: You are satisfied with the amount of compensation we are getting for storage?

Mr. FULTON: Satisfied with it on the basis that we were to receive an entitlement to one half of the power created below, with flood control payment on the agreed basis.

Mr. GELBER: Do you feel that in the protocol we have a reasonable figure for storage?

Mr. FULTON: The compensation for the use of our storage is set in the treaty. The treaty recognizes we are entitled to one half the extra power created downstream.

Mr. GELBER: In connection with the sale of power, part of the power was to be sold according to the original arrangement, then the argument with British Columbia arose, and from here on the downstream benefit was to be sold.

Mr. FULTON: That is a brief statement of it, yes.

Mr. GELBER: British Columbia was not introducing a new principle in the arrangement?

Mr. FULTON: Well, Mr. Gelber, what we had in mind when we negotiated it was that the primary purpose firstly was to secure entitlement and then ensure that it would be returned to Canada for use in Canada. Subject to that, portions of the surplus to our requirement might be sold downstream while surplus. This seems to be quite different from the principle which says our purpose now is to sell the whole entitlement downstream on a long term basis. To me that is a reversal.

Mr. GELBER: I can see that you were put in a difficult situation by reason of the final position taken by the government of British Columbia after the treaty was signed.

Mr. FULTON: The fact that I am correct in my statement is borne out in my mind by what the United States said in one of the subsequent documents prepared when we were exploring with them on a completely tentative and unofficial basis what would be the prospects for a sale. The United States made it clear that they would prefer to proceed with the treaty on the basis originally contemplated; that is, that Canada would receive as its own, in its own country, one half share of entitlement, but they said that since it has been stated in Canada that it is going to be difficult to get a treaty on that basis, we are prepared to examine the other possibility. I merely cite that as an indication that it was clear in the minds of Canada and the United States that the basic intent and original arrangement was that they would keep their one half down in their country and we would get our one half share back and use it in our country.

Mr. GELBER: Then you feel the great loss we suffered was foregoing cheap power and that this was an important asset?

Mr. FULTON: Yes.

Mr. GELBER: Do you not feel that the mere fact we had cheap power to sell probably gave us a higher price when we sold our contract to the United States?

Mr. FULTON: Now, you are getting into a pretty involved subject, Mr. Gelber. I have a number of objections to this program for disposal, some of which, of course, involve the other proposal, to go ahead with the Peace. I think one has to be weighed against the other in order to assess the merits of the positions. But, I would prefer not to get into that as I do not see that is going to be very helpful to the members of this committee. I do not think we have a particular good price for our power.

Mr. GELBER: That is what interested me. I gather from what you said earlier one of the things you felt we lost was that we were foregoing by this sale cheap power.

Mr. FULTON: Yes.

Mr. GELBER: And, assuming we got an adequate price would you feel now we are being compensated for the cheap power we were foregoing, even though you did not feel that way at the time?

Mr. FULTON: But, you cannot look at one side of this equation or one factor in it. There is another factor. What power are we going to have available for use domestically to replace the power we have sold?

Mr. GELBER: I understand that is your argument with the government of British Columbia.

Mr. FULTON: Yes.

Mr. GELBER: And you do not feel, with the introduction of this new factor, whether or not British Columbia goes ahead with the Peace that this would tempt you to change the judgment you had at the time of negotiating the treaty.

Mr. FULTON: It does not tempt me to change my position nor does it say that I was wrong at the time. I believe I was right at the time. I believe that was a right policy to advocate. But, as the Peace is now going ahead, the facts are not now the same as they were when I was fighting to prevent these things from coming into existence. I was trying to stop the Peace being given a priority vis-a-vis the Columbia. That fact has to be taken into account. I want to avoid suggesting to members here the moral or other grounds under which they should make up their minds. It does seem to me that most of these new changes are things which should be borne in mind by the members here when making up their minds what they should do about this whole thing.

Mr. GELBER: In view of these new facts with which you were not in agreement at the time you might feel the policy of selling the downstream benefits would be more justified in 1964 than it was in 1961?

Mr. FULTON: Well, I said yesterday that once the decision was made to go ahead with the Peace on the basis on which it is, there was, in fact, no other thing to do with the Columbia, if you are going to develop it. There was no market left for at least an appreciable period.

Mr. HERRIDGE: Is it correct to say that the people of British Columbia are being supplied with a more expensive power and the cheap power is going to the United States?

Mr. FULTON: That was my view and that is why I took my position in opposition to what I felt was going to be done.

Mr. GELBER: But in the case of power one has to consider the benefits one gets from the construction of all these dams and reservoirs.

Mr. FULTON: Oh, yes.

Mr. GELBER: That also is a part of the price of power in terms of the history of British Columbia.

Mr. FULTON: Yes. You see, it is not a cut and dried case; unfortunately, it is a very complex thing. One tries to simplify it to make it an issue which people can grasp and, sometimes in doing so, you oversimplify it. Do not think that I am taking the position that everything I say is right and there was no case to be made on the other side; these people are very sincere and conscientious, and they felt the way they suggested was the proper way to deal with it. I received their views but I felt intensely that they were wrong and did my best to prevent these views from prevailing.

Mr. KINDT: Before lunch, Mr. Fulton, you mentioned that the people of the Arrow lakes country and the upper Columbia were not very well informed. Whose fault was that?

Mr. FULTON: In respect of the plans which will be implemented and the arrangements for compensation, together with assisting them in relocation and so on as a result of flooding, yes, I felt there was not much public knowledge of what is contemplated in that respect.

Mr. KINDT: Do you also feel that they are not too familiar with the provisions of the treaty?

Mr. FULTON: Well, if they are not I must accept some responsibility for it. But, I undertook a speaking tour throughout the Kootenay and Columbia valleys within a month after the treaty was signed, around the end of February and the beginning of March. I went to Mr. Herridge's territory and tried to convince them of the validity and value of the arrangements made. And, others have made speeches about it. I suppose, to some extent, the public is never as fully informed as they might be.

Mr. KINDT: Do you feel that the issues have been fairly well discussed? Also, do you think anything would be gained by the members of this committee

making a trip out there and making contact the people in order to give them an opportunity to talk with us and to show us what they have and so on. You are from British Columbia; what is your reaction?

Mr. FULTON: That is an interesting suggestion, Dr. Kindt and, as a British Columbian I think the exposure of members of parliament from other parts of the country to our province is always desirable, but whether it is essential for the purpose of making a decision I would hesitate to say. I think you would find opinions out there divided. There are those whom Mr. Herridge speaks for and they would let you know they felt that way. Others would let you know they were looking forward to this development, and some would let you know they are looking forward to the day when they receive cash for their land as a result of which they would be able to move off it. These opinions are pretty well hardened. My own view is clear. In my opinion, the majority of people in that district are in favour of the development.

Mr. HERRIDGE: Which district?

Mr. FULTON: The Kootenays.

Mr. HERRIDGE: Why is it then when a tremendous campaign was put forward by the Nelson chamber of commerce, when petitions were put in every store, organization and garage, as well as other places, there were able to get only 4,000 signatures out of a possible 56,000 who were entitled to sign. It was admitted that the campaign was a flop.

Mr. FULTON: Well, chamber of commerce drives are not always successful. You and I cannot agree where public opinion will arise.

Mr. HERRIDGE: Would you not say that I am in closer touch with them?

Mr. FULTON: Now, Mr. Herridge, I am not going to get into that kind of a discussion. I have discussed it with a number of people like you who are in close touch.

Mr. KINDT: May I proceed to another question. I would like to put a question in respect of flood control. What do the committee have in mind or in the back of their minds as a definition for flood control. As you know, that is a very slippery term and it needs to be defined in order that we will be thinking along the same lines. There is a paragraph in your brief at page 22 which deals with the forever aspect of giving consideration on flood control.

Mr. FULTON: Well, the principles that we accepted were those which were worked out and reduced to written form by the International Joint Commission.

Mr. KINDT: But I am referring more specifically to the meaning of the term "flood control". It is not clear and I never have seen it defined.

Mr. FULTON: Perhaps I should read flood control principle number 3: "The monetary value of the flood control benefit to be assigned to the upstream storage should be the estimated average annual value of the flood damage prevented by such storage."

Mr. KINDT: Now, when you are speaking of flood control did you mean that it was controlled and that that would prevent floods or eliminate floods?

Mr. FULTON: A control that would reduce the flows—that is, the maximum flows at a point at The Dalles to a stated amount which, in the opinion of the United States, engineers, would prevent a flood of 1894 proportions, if we would work out a scheme of operation which would limit the flow at The Dalles to 800,000 cubic feet per second and extra payment if they asked us to take it down to 600,000 cubic feet per second.

Mr. KINDT: Yes. Now, it is stated in your brief at page 22 that this allegation is based on the fact that the treaty does provide that even after the end of its term and so long as the Columbia waters in their natural channel con-

stitute a potential flood danger below the border the United States shall have the right to call upon Canada to operate its storages so as to prevent or reduce actual flood damage. In my opinion, it all hinges upon what you interpret flood danger to be. Was our negotiating committee or team aware of the fact that you never could prevent floods completely at The Dalles or the lower Columbia?

Mr. FULTON: Yes. We never felt and certainly never represented that we would be able to guarantee there never would be a flood.

Mr. KINDT: In other words, you might conceivably have a 30 year flood, or what is classed as that, at The Dalles and not have a drop of water in Canada from a flash rain in the lower part of the watershed.

Mr. FULTON: Well, the Almighty does some peculiar things sometimes, Dr. Kindt. At least, in our judgment, it would seem so. It would be possible but, I think, so improbable that one would be justified in saying no.

Mr. KINDT: The United States army engineers give the opposite view.

Mr. FULTON: Well, if what you are saying is that the statement is made that a flood could occur as a result entirely of a run-off occurring below the border without similar conditions occurring in Canada I should be very surprised if they have ever gone that far. But, if it should happen, then there is no responsibility on us.

Mr. KINDT: I believe I am correct in saying that only 14 per cent of the watershed is in Canada and 84 per cent is in the United States.

Mr. FULTON: Well, according to the records, 40 per cent of the 1894 flood was caused by waters originating in Canada with the exception of a small loop made by the Kootenay through the United States. In respect of the 1940 flood, the waters of Canada constituted 30.9 per cent and, in respect of the 1956 flood, 36.3 per cent.

Mr. KINDT: In other words, you might build all the structures you want in Canada and you would not prevent floods in the United States?

Mr. FULTON: I think this would be correct. We could not guarantee we could prevent floods in the United States.

Mr. KINDT: In other words, did the committee have in mind the fact you could not eliminate floods?

Mr. FULTON: Yes, we did.

Mr. KINDT: You will always have a flood of some magnitude?

Mr. FULTON: The possibility always will exist, yes.

Mr. KINDT: Do you recall a few years ago when discussion took place about Ice Harbour and Williston, when the people there were approached by the United States army engineers to have structures put in there to control floods at The Dalles and down below, and when the people of Williston said "nothing doing. We are not going to move our homes in order to save The Dalles." Do you recall that?

Mr. FULTON: I think I am aware of it, but I have no detailed knowledge of the discussions.

Mr. KINDT: Do you also recall the attitude of the people at Williston and in there when they said, "nothing doing, it is up to the people at The Dalles to move to higher ground?"

Mr. FULTON: No, I am not aware of it. But I do not dispute that somebody there might have said it.

Mr. KINDT: Yes. They established the direct principle there that in order to cure floods at The Dalles, or at any of these places, it was necessary to move to higher ground.

Mr. FULTON: I do not think you can say they established a principle. Rather I would say they were asserting a point of view. If they were not prepared to give up their homes for flooding in order to prevent flooding elsewhere, that was a point of view, not a principle.

The CHAIRMAN: Surely if the witness has never heard of it, that closes the matter.

Mr. KINDT: That same point of view now prevails in the Arrow lakes.

Mr. FULTON: Those who say that the advantages to us from Arrow flooding do not justify the inconvenience to the people there take that point of view, yes. But remember that Arrow is not being built for the purpose of flood control alone or any of those treaty projects. There is a twofold purpose, power and flood control, and we are compensated for both aspects. Arrow is a very substantial earner in compensation for both aspects.

Mr. KINDT: That is right, and in view of the fact that you are always going to have floods—

Mr. FULTON: I cannot quite accept that, and if I should let your question go, I would be taken to have accepted it. I do not accept it that you will always have floods. I accept that there will always be the possibility of having floods.

Mr. KINDT: All right.

Mr. FULTON: It may be that our control will be perpetually successful. We hope it will. It will certainly be a great advantage with respect to control of floods. But we did not, and we could not guarantee that it would always be able to prevent floods.

Mr. KINDT: Well, in other words, we would be kicking around this proposition of flood control forever and it seems to me that before Canada undertakes it, it ought to be made pretty clear what the function of Arrow lakes will be for the control floods in the lower Columbia, because that is the key item.

Mr. FULTON: We do not take the responsibility of preventing floods at The Dalles. We take the responsibility to operate storage in a certain way so as to reduce flows to a certain amount, or in an attempt or design to reduce flows a certain amount. After the treaty term, after the 60 year period, we accept the obligation to operate it in a certain way if the United States requests it, and if we should agree that it is a reasonable request. It is up to them. We have not guaranteed that it will have the result hoped for. And if it does not have that result, there is no reflection upon us. Our responsibility is to operate in a certain manner at the request of the United States. That is the limit of our maximum responsibility at any time. General responsibility does not even go that far.

Mr. KINDT: Does that not give the United States control over the flow?

Mr. FULTON: No.

Mr. KINDT: Under the guise of flood control?

Mr. FULTON: No. We discussed this yesterday and I do not think I can do more than repeat the answers I gave then. There are built into the treaty certain inhibiting factors which will prevent, or operate to discourage the United States from calling for flood control operations which are unreasonable. And as I pointed out yesterday, with respect to Mica the amount of water to be conserved in that way is very small in comparison to the total storage involved there, and even in comparison to the storage committed to operations under the treaty at Mica. So Mica retains its flexibility of operation as a power producer.

Mr. KINDT: But still, even with your answer, this thing has been kicked around here for a considerable length of time.

Mr. FULTON: Yes.

Mr. KINDT: I think the committee ought to be made fully cognizant of what is in the treaty, and what the interpretation is with respect to carrying out forever, at the suggestion of the United States, the flood control factors. Have you another point to make on that; have you anything further?

Mr. FULTON: I fully agree that it is desirable that the treaty should be adequately explained and that the factors should be revealed instead of some of the fiction that has been disseminated about it. Dr. Kindt maintains that the answers I have given, while they come not from one who is personally qualified as a technician, but rather as answers which emerge from those who are engineers and technical and economic advisers, that the advice that has been brought to bear on the treaty is factually correct. And I would point out again that there is no burden or cost upon Canada that can be attributed to the feature that you describe because it is provided that if we do incur any loss, we receive at that time full compensation.

We are at liberty, if we lose power by being asked to operate in a certain way, the United States undertakes to replace that power in our system at that time if we ask them, or they will pay us in cash if we ask them. These are facts which are completely disregarded by those who go about making bald assertions and representing that we have accepted a degrading servitude to the United States.

Mr. KINDT: We are not in a position to destroy the Arrow dam at the end of 60 years.

Mr. FULTON: If we wanted to, yes; if we terminated the treaty, we would be free to take the dam out.

Mr. KINDT: How do we release that water so as to control floods?

Mr. FULTON: The question is whether it could be done—

Mr. KINDT: Oh, there is a difference.

Mr. FULTON: Or whether it would be sensible to do it.

Mr. KINDT: Oh, but then we are obligated to control these floods.

Mr. FULTON: So long as the flow of the Columbia river in its natural channel constitutes a potential flood hazard, then we will accept requests to operate it in a certain way. But if at that time when we are asked to do it we think that it is an unreasonable method of operation, that is, if it should hurt us, if we should lose anything by it, the United States will make good that loss right away, and they concede that they always will do so. This is a matter of good neighbourliness.

Mr. KINDT: But that storage under the guise of flood control is going to be there forever.

Mr. FULTON: We could divert the Columbia into the Fraser and then we would have no more responsibility to the United States as to how we operate it. We could take our dams out if we felt that the expense and other things involved were not worthwhile to us, we could do it; that is if we found we could do so without immediately subjecting ourselves to other difficulties. It is going very far afield to think that we would actually take the dams out in this way, actually divert water. I do not think it is really a profitable line of discussion.

Mr. KINDT: That may be all right, but they have this "forever" aspect in the treaty which is pretty hard to explain to my constituents.

Mr. FULTON: Could you not explain it this way: that Canada has agreed, being a good neighbour of the United States, and having been paid in full for the dams. This was under the treaty even before the protocol or sale arrangements, at least with respect to the portion attributable to flood control. Having been paid also a very substantial sum for flood damage for approximately 60

years, all of which is of enormous benefit to Canada, and having received that, we would then be acting as a good neighbour if we let the water in the Columbia flow down across the border.

We will undertake so long as the storage is there to work it and operate it in a certain way in order to minimize flood damage if you request us to do so, but you cannot accept such an obligation unless you in turn say that you will compensate us for any damage which develops from it, or any loss which we suffer or accept at your request. That should not be too difficult to explain to your constituents and have them agree to it.

Mr. KINDT: As a negotiating committee—

The CHAIRMAN: Before you ask your next question I have two supplements, Mr. Pugh and Mr. Macdonald.

Mr. KINDT: Please let me finish.

The CHAIRMAN: No.

Mr. PUGH: Does this plan of operation of flood control fall into our planned operation of the Columbia?

Mr. FULTON: We have so arranged it in the treaty and the annexes that the operation for one purpose will not create any measurable inconvenience with respect to the other.

Mr. PUGH: When a question was put to a previous witness the answer we got was that it would be extremely rare to have our operations hurt in any way by any request for flood control even at a peak year.

Mr. FULTON: I would agree with that answer, yes.

Mr. MACDONALD: Would it not be a proper statement of the obligation to say that after 60 years, and assuming that there is termination after 60 years, that we are not obligated to keep the dam in existence; therefore we can cease to operate it for that purpose and at that point our flood control obligations cease to exist. But if we do keep it in existence and in operation, then we have this flood control obligation?

Mr. FULTON: Yes.

Mr. MACDONALD: So there is no question of there being a servitude forever but only if we keep it in operation.

Mr. FULTON: It is entirely at our option, and even if we do keep it in operation. I do not regard it as a servitude. A co-operative arrangement of this kind where you cannot possibly be hurt is not my definition of a servitude.

Mr. HERRIDGE: In the area to be flooded lumbering operations will be affected, and we may have 150 million feet of logs waiting, when a sudden withdrawal or lowering of the reservoir may come, with consequent considerable expense and inconvenience.

Mr. FULTON: I can see that a sudden unexpected lowering would disrupt planned operations, but they would surely know in advance, and they carry on their operations accordingly. I would like to check this. If they had as a result of a flood control call an experience along this line, this would be part of the economic loss in Canada for which we are entitled to receive compensation, that is, after the 60 year term.

Mr. HERRIDGE: And all these companies and persons affected would be compensated?

Mr. FULTON: Certainly. I cannot speak for the government of British Columbia, but I cannot think of any government which would collect compensation for losses to private citizens and not turn it over.

Mr. HERRIDGE: They will always be reasonably safe unless there is a sudden change of reservoir level with respect to the operation of this reservoir.

Mr. FULTON: No. Generally speaking the reservoir would be operated in accordance with an agreed plan known five years in advance and kept up to date. So you have a five year plan of operation, and you will find what a normal operation of this reservoir would be, and you can conduct your operations accordingly. If, even after the end of the treaty's term of 60 years, when this final or residual flood control arrangement comes into effect, even then as a result of a flood control call, if there should be a sudden unscheduled lowering of the reservoir which involved people in real loss or monetary loss because of the unforeseen quick operation, that would be an economic loss in Canada for which the treaty specifically provides that we would be compensated.

Mr. HERRIDGE: Do you realize, Mr. Fulton, that under certain conditions this could mean the grounding of logs in booms in shallow bays to the extent of 25 million?

Mr. FULTON: I doubt whether the reservoir would ever be emptied that suddenly and to that extent.

Mr. HERRIDGE: It only means 25 feet in certain cases.

Mr. FULTON: It is pointed out to me that I should get the thing into perspective by reminding the committee that floods on the Columbia are generally the result of snow melting, not the result of a flash rainstorm, so that usually you can predict the time of the year when these operations will be carried out.

Mr. HERRIDGE: And those operators would receive sufficient notice to move the booms into deep water?

Mr. FULTON: Certainly before the reservoir could be emptied, to that extent they would be notified, but I cannot say how much notice would be given.

Mr. KINDT: Has there been any discussion on how much additional irrigated land there would be in the states of Washington, Idaho and Montana as a result of this treaty and storage water provided in Canada?

Mr. FULTON: No. I do not think the treaty affects the amount of irrigated land which would be brought into production in Washington. The waters go down there now. We are not sending over water they did not have before.

Mr. KINDT: But it would be better timed for crop production.

The ACTING CHAIRMAN (*Mr. Brewin*): I should announce the Chairman had to leave unexpectedly. He is expecting the return of the Vice-Chairman soon and he has asked me to assume that position for a moment. I will resume my usual impartiality.

Mr. KINDT: I am waiting for Mr. Fulton's reply.

Mr. FULTON: I am also reminded that when irrigation is needed it is in the summer months when the flows are high, and the United States can now pump water out of the Grand Coulee reservoir for irrigation when they have a surplus there which occurs in the summer months. We will not be releasing water in the summer months; we will be releasing water to maintain the flow during the winter months, and that is, generally speaking, in the season when irrigation is not going on.

Mr. KINDT: The first irrigation starts in the early spring.

Mr. FULTON: That is about the time when the river flow is increasing.

Mr. KINDT: That is right. They get the benefits of our flood waters then.

Mr. FULTON: We are beginning to hold them back at that time to fill our reservoirs, so that generally speaking, the United States is not getting our water down there during the irrigation season. They will be using their water.

Mr. HERRIDGE: Will they not ask us to refill our reservoirs?

Mr. FULTON: Our obligation is to refill our reservoir for power in accordance with an assured plan of operation, and also to release it in accordance with that plan up to certain limited amounts.

Mr. PUGH: Is it not a fact that the highest level behind the High Arrow dam is throughout July and August; in other words that is the time when the storage of water is fullest?

Mr. FULTON: That is correct. Generally speaking, it would be full in July and August. The draw down periods I think are outlined in annex B in general principle.

Mr. KINDT: I do not know when the sun shines and when the wind blows in British Columbia to melt the snow in the mountains but I would think it would be some time in March and April. If you are going to fill your reservoir, it would be at that time.

Mr. FULTON: The rivers usually do not commence rising, in my part of the country—Mr. Herridge can speak for his—until early May.

Mr. HERRIDGE: Early May and into June.

Mr. FULTON: If they start in early May, there is usually a lesser peak, certainly in our river, about the third week in May; it declines a little and then rises steadily throughout June and reaches its peak in early July.

Mr. HERRIDGE: You are speaking of the Thompson river.

Mr. FULTON: That is the pattern of our rivers in the interior which are fed primarily by glaciers and melting snow.

Mr. KINDT: Could you make a statement to the effect that your negotiations were for power and water development and not necessarily irrigation or any other consideration; in other words that the storages being built on High Arrow are mainly for power and water development?

Mr. FULTON: The two purposes are flood control and power production.

Mr. KINDT: In other words, there is no hidden thought that the dam is to be constructed on the High Arrow as a background to using the water for irrigation and other purposes and keeping it on in perpetuity?

Mr. FULTON: No.

Mr. HERRIDGE: Could I ask a supplementary question? Can you assure the committee that the United States authorities are not putting irrigation pipes into the dams, taking water off above their dams before it goes over the dams?

Mr. FULTON: They may be; I have no knowledge of it. We could have no objection to their doing that as it is on their side. My point is that they are not getting our stored water, generally speaking in the broad plan of operation, to fill their reservoirs or to be made available to them during the irrigation season. That is in general, I am not saying there will not be a slight overlap.

Mr. HERRIDGE: Do we get half the downstream benefits for power produced at every dam on the Columbia in the United States?

Mr. FULTON: In the base system outlined in annex B.

Mr. HERRIDGE: In all the dams?

Mr. FULTON: All the dams that form part of the base system. There is one that is not built yet, the Ben Franklin, and we have the right to add that into the base system when it is built.

Mr. HERRIDGE: And all the other dams constructed on the Columbia in the United States?

Mr. FULTON: Yes, on the main stem of the Columbia river.

Mr. KINDT: I have one final question. Your position then, as you stated it this morning, is that you accept the treaty but you do not agree to all its parts?

Mr. FULTON: I agree with every part of it. I am not approving part of it and recommending part of it. What I said was that I never pretended we had our way in all of it. However, I approve and support the treaty as a whole.

Mr. HERRIDGE: I have another supplementary question to make clear my point. I mean all the dams constructed in the future.

Mr. FULTON: The answer is still yes, all the dams now constructed or to be constructed in the future on the main stem of the Columbia river in the United States.

The ACTING CHAIRMAN: The next questioner, and I hope no one will suggest there is any partiality creeping in, is Mr. Cameron. He is on my list.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I put myself on the list when the other Chairman was here a long time ago.

Mr. FULTON, on page 2 of your brief, in the second paragraph, you make mention of some unidentified people who suggest that we should go it alone. I am wondering if you could, first of all, define to me what you meant by "go it alone"?

Mr. FULTON: Without any treaty.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Without any arrangement with the United States?

Mr. FULTON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I am interested in this because I never heard anyone make that suggestion. I was wondering who made that suggestion to your knowledge?

Mr. FULTON: Many people have told me about it independently, and a very distinguished witness, General McNaughton, has stated he would rather have no treaty than this treaty.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That is a different matter.

Mr. FULTON: What I said, you will find, is that the treaty is a basic necessity to the realization of the full extent and potential of Canada's rights and interests in the Columbia river.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I did not hear General McNaughton ever suggest that we should ignore our relationship with the United States.

Mr. FULTON: There are those who take the position we would be better off without this treaty, which means we get no treaty. We then either go it alone or we do not build anything on the Columbia river.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): This is the next point I wish to come to. You tell us that without this treaty there will be no treaty, that is you rule out any possibility of another treaty being negotiated.

Mr. FULTON: Yes, on the basis on which the critics of this treaty say it should be negotiated, as I see it, we would have no treaty because if they insist that we should have a treaty which creates the Dorr-Bull river diversion right away, then I am satisfied you could have no treaty. If you want it another way which eliminates the Arrow dam, you get a treaty which reduces the benefits to Canada to so low a level that it would be very questionable to say whether we should in fact go for it. It would mean that the power production of Mica, Downie creek and Revelstoke would be greatly inhibited, and I think

it would be doubtful whether the United States would be willing to renegotiate the treaty because they made it clear, and I am satisfied they were not bluffing in any way and our own people confirmed they felt this is the fact, that they are approaching the time when they are going to need substantial increase in power in that area and they would like to get it under the treaty if possible. Therefore, if they could not get it this way, if there was going to be no treaty development, they would have to proceed with further projects in the United States, perhaps thermal as well as hydro. Once they have done that, then they would be very much less inclined, if at all, to negotiate a treaty for benefits which at that stage would be very much less important. That is why I say I doubt very much whether you could get another treaty by going through the whole gamut of renegotiation. They would feel they would have to say, "Let us forget it."

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I do not have your exact words, and correct me if I am wrong, but I think in your oral remarks yesterday you made the suggestion that the United States might very well withdraw from any future negotiations and arrange for their own flood control storages.

Mr. FULTON: I did not say withdraw from negotiations. They would have to look at the cost factor and would not be prepared to pay us so much compensation for flood protection or for that aspect of our dams that would be more expensive to them than providing installations on their side for the same purpose.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): For storage?

Mr. FULTON: For flood control.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Evidence has been presented to us by more than one witness that owing to the particular pattern of development in the lower Columbia it is not now possible for adequate storage facilities to be provided south of the border. Presumably, you have some other information.

Mr. FULTON: No. Surely the statement is that it is becoming increasingly expensive to provide adequate storage, to store all they really require. I have no quarrel with that.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It is virtually impossible for them to do so, physically impossible. Is that correct?

Mr. FULTON: I do not think it is physically impossible; it is a matter of economics rather than the physical aspect of it.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It would be a combination of the physical disabilities and the economic disabilities.

Mr. FULTON: The physical disabilities and the economic difficulties.

The view that was reported to us and which we accepted was that while it will be physically possible for the United States to control flood flows in the existing and additional storage in the country—which means in that country—the cost assigned to the construction of storages would distort the economic of their whole system.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Is that not a bar to their adopting that? If there is still an opportunity of their getting flood storage in Canada under the treaty, or another one, or a modification of this, would not the same compulsions operate?

Mr. FULTON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It is unrealistic to suggest that the Americans would go home in a huff and do it themselves.

Mr. FULTON: For them to go home in a huff is something that I have not suggested, but I have suggested there are practical limits to the price they are prepared to pay, and there also are time limits in which they must have these things.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): What are the time limits?

Mr. FULTON: From the standpoint of power—

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): We are speaking of flood control.

Mr. FULTON: I do not think you can divorce them. In our view, and understandably, when they are thinking of storage to provide extra power, the United States does have a time limit beyond which they cannot wait, and if they cannot see that they are going to get it from the treaty, they are going to have to permit construction on their own side in order to get power.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That still would not solve their flood control problem.

Mr. FULTON: Not in total.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It would not be adequate enough to make it attractive for them to do that.

Mr. FULTON: There is bargaining on both sides. We were not unaware that the United States would find difficulty, economic as well as physically, to provide the full storage they need on their side of the border. We were able to extract some fairly good things from them. One of them—not directly related to this—was that we maintained a position which would keep Libby in a position at which there are no benefits from Canada attributed to it; we do not have to share the benefits that were conferred on us with the United States. We did some bargaining.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Was it intimated to you at any time that the United States negotiating team would be prepared to drop the proposition of the construction of Libby dam?

Mr. FULTON: Yes. In the initial stages to which I have referred, they were prepared to negotiate about it, quite definitely. We put forward the package and they said this means we will not get Libby. They went home and came back with a series of requests. When we began to talk about price, 2½ mills was suggested which was their rate structure. That was the pattern which was emerging. This is what we agreed to negotiate on when the British Columbia position became firm. We cannot prove that that would have continued, but I can tell you that they were prepared to negotiate about it.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Could you give us some more information about the technical advisers during the negotiations? As you mentioned in your brief, there have been suggestions that our team was incompetent and up against—this term was used—slick Americans, or something of that sort. Could you tell us of whom this team was composed; that is, the technical advisers?

Mr. FULTON: I do not think I have any objection to giving you the list if you want to make a point that it consisted mostly of government servants. The team included the following engineers: Mr. A. Paget of British Columbia; Mr. Gordon Kidd of British Columbia; Mr. T. M. Patterson of the water resources branch; Mr. G. M. McNabb of the water resources branch; Mr. H. T. Ramsden of the water resources branch; Mr. P. R. Purcell of the water resources branch; Mr. M. Ward, Ontario Hydro Electric Power Commission; Mr. A. W. Lash, British Columbia; Mr. E. R. Peterson of the International Joint Commission. Then, the following economists: Mr. J. F. Parkinson, Department of Finance;

Mr. A. M. Coll, Department of Trade and Commerce; Mr. W. A. Kennett, Department of Trade and Commerce; Mr. M. H. A. Glover, British Columbia; Mr. G. R. Knight, British Columbia; Mr. J. V. Fisher, British Columbia; Lawyers, Mr. J. J. McCallum, International Joint Commission; Mr. H. C. Kingstone, Department of External Affairs; Mr. E. R. Olson, really an officer of the Department of Justice, but assigned to the Department of Northern Affairs, and Dr. G. D. Kennedy, deputy attorney general of British Columbia.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I assume that not all of this quite extensive list were with you in all the negotiations.

Mr. FULTON: Most of the time, without exaggeration. When we flew to Washington we took a full plane load and when they came up here, of course all our people were available. We went to Washington and they came here immediately following the meeting of the policy liaison committee, so the British Columbia people were here at the time.

Mr. HERRIDGE: With reference to the technical staff, could you tell us the period of time spent on the Columbia river basin by the various members of the technical staff since 1944?

Mr. FULTON: I do not think I could begin to do that. All those who were members of the international Columbia river engineering board would have spent appreciable time in the Columbia river basin.

Mr. HERRIDGE: Did Mr. Patterson spend appreciable time there?

Mr. FULTON: Yes, I am informed he has been out there on a number of occasions, to the Columbia river.

Mr. HERRIDGE: What time has he spent in the basin?

Mr. FULTON: I do not have a schedule of that; but, Mr. Herridge, the answer to your question is that a number of these advisers had personal first hand knowledge of the conditions in the basin, because they had been there personally to familiarize themselves with it. In addition, all of them had the benefit of the exhaustive studies.

Mr. HERRIDGE: But I am speaking of knowledge of the situation on the ground.

Mr. FULTON: They had the knowledge obtained from the consulting firms which were retained by the engineering board.

Mr. HERRIDGE: But not personally?

Mr. FULTON: Not every one of them, no.

Mr. PUGH: This technical group did rely almost 100 per cent on professional advice which had been obtained by the government.

Mr. FULTON: As you appreciate, many of them are qualified professional engineers. When I say professional, I do not mean for hire outside, but technically qualified as engineers and members of the appropriate national or provincial engineering institutes. In addition, they all had available to them the studies and research reports done by professional engineers in the literal sense, that is in the commercial field, Crippen-Wright, Montreal Engineering Company and B.C. Engineering. There were those and several other studies. These were massive studies carried out by private firms, and these were available to the technical advisers in the government service.

Mr. HERRIDGE: That is, they made their recommendations on the reports of these consulting firms?

Mr. FULTON: On a number of reports, Mr. Herridge, and a number of other things, exhaustive engineering studies carried out by private firms and by the International Joint Commission engineering board, together with exhaustive studies carried out by the civil service on their own to an extent and also by

way of analysing these reports made available to them. In addition to this, there was the benefit in a number of cases of quite extensive personal familiarization with the basin. Of course, one never can be absolute about these things, but I think I would reflect the general consensus that seldom, if ever, has a river basin received the intensive study which the Columbia river has.

Mr. HERRIDGE: We are not questioning the ability of these gentlemen but the members of the staff who undertook studies on the ground.

Mr. FULTON: I am not intending to pose them as natives and say they know the Columbia from source to mouth, but I do say that I reject any suggestion—if that is what you are trying to suggest—that the results reflect a lack of knowledge or information about the Columbia river.

Mr. HERRIDGE: None of us said that. Mr. Elmer Bennett said our people did not have much experience.

Mr. FULTON: He did not say that.

The ACTING CHAIRMAN: Gentlemen, we are getting far afield. Would you proceed, Mr. Cameron.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): We now come to another aspect of the negotiations. In your approach to these negotiations did you take into consideration the question of water per se, not merely as an adjunct to power consumption.

Mr. FULTON: Yes, some attention was given to that but the recommendation was—and the more you think of it the sounder you think it is—that we do not sell water as such but that we charge for the services provided by storage and we should measure the charge in reference to the benefit afforded.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I am not concerned about the charge made. I want to get away from the power aspect and the immediate financial returns. Did your negotiating team or the government of which you were a member, in approaching this, take into consideration the urgent and increasing need for water to maintain water tables throughout the arid plains of Canada? Although the water sources happen to lie in British Columbia obviously they are the property of the people of Canada.

Mr. FULTON: Yes, I would say that increasing consideration was given to this aspect of the matter concurrently with the negotiations through such studies as the resources for tomorrow conference, the realization there is a necessity of spreading the use and benefits of our resources across Canada and that kind of thinking. As I say, these studies which were fostered by our government were taken into consideration.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Did you have any misgivings about locking the door to a possible diversion of the Columbia?

Mr. FULTON: We did not lock the door but we deliberately kept it open.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I suppose that is a matter for a constitutional lawyer to argue.

Mr. FULTON: No, no, there is no doubt about that in my mind; the treaty says it. It says a diversion could be made. General Itschner, the one who often has been represented as being an ogre and getting everything, admits it; the Americans wanted it. He admits we can make diversions outside the basin. In that light how can you say that the treaty prevents us from making diversions?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I would remind you that our present Chairman has been attempting to extract from every government witness the question whether or not they have had a legal opinion.

The Acting CHAIRMAN: Mr. Cameron, just question the witness.

Mr. FULTON: I was speaking for myself. He asked if we had a legal opinion that multiple use would be permitted; in other words, diversion for electric power. I said we had not had such a legal opinion but there was no question about it, and that was the extent of my answer.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You shatter my faith in your profession. You say there was no question and yet you have not had a legal opinion.

Mr. FULTON: There are some things which are self evident and even lawyers do not have to pass upon them.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Let us go to another self evident thing, the question of the actual feasibility of diversion after the life of the treaty. It has been very difficult to get any sort of satisfactory answer out of witnesses to the question of whether the reality of this situation really was explored and whether it would be possible. There have been instances in Canadian history where Canada found herself in this position in attempting to do what she thought she was legally entitled to do by the treaty, and this was based on the fact that the United States government considered it an unfriendly act because of the replacement of vested interest and so on.

Mr. FULTON: The one instance I can think of which might conform slightly to your description is the Niagara power one and that was a long term contract.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): How would you distinguish between a long term contract and this treaty we have with the United States?

Mr. FULTON: I really do not want to quarrel with this. In the first place, I would say you have not established a basis for your statement. There was one example of which we can think of, and that was a 50 year contract where the government, I am informed, was not involved and where they were seeking to recapture before the term of the contract expired. While I make these qualifications or reservations in respect of what you have said I want to create the opposite impression from what you have implied, namely that these things were very carefully considered by the Canadian negotiators and their advisers; we considered the question carefully whether in writing into the treaty a right such as this, to make the Kootenay diversion, we were indulging in a fruitless exercise, and we came to the conclusion we were not.

The two governments who were engaged in this went into it very thoroughly and there was no question of our ability to exercise it at the time when the opportunity arose. To some extent, this can be only a guess; who can say what is going to develop within the next 60 years. I know this opinion is not accepted by all—that is to say, it is not accepted by all that we will, in fact, go ahead and exercise that right at the time. But, it should be impossible for anyone seriously to sit there and maintain the treaty does not give us the right.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It depends on your definition of right. I agree that it gives you a legal right. But speaking to you as one politician to another, do you really concede that a United States government faced with the indignation of a body of its citizens who say that investments they have made and developments which have taken place are threatened by Canada's exercise of this legal right, would not bring pressure to bear on their authorities?

Mr. FULTON: Yes, but do you not think they have tried it already, with the statements made by their own experts at the time the treaty was discussed, and that this would be a complete answer to it? And thirdly, as maintained by

many with respect to the right to make a Columbia diversion into the Fraser now, notwithstanding Grand Coulee and other tremendous developments downstream in the United States, do you not agree that we would have the right to make the Kootenay diversion 60 years from now, when what is done would have been done under specific provisions?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I do not know who assures us that we have the right to divert to the Fraser. Perhaps you have a legal opinion on that point, but if so it has not been presented here. Is this not in a sense the attitude that we should take towards other provisions in the act which is completely illusory, or may very well be illusory to the treaty, owing to developments during the next 60 years which will establish rights which are dependent on Canada in exercising this legal right?

Mr. FULTON: I do not know on what basis you can possibly assume that, or why you should assume it.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I would imagine that as vigorous and enterprising people as Americans would take advantage of the situation that is created by this treaty to establish businesses and to take advantage of that situation.

Mr. FULTON: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I cannot see them holding back.

Mr. FULTON: No, and I do not say that they will not make that argument, but why should you assume that their argument must succeed?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Because I have observed governments which have yielded to precisely this sort of pressure, and they are not very far away. And some of them you have seen, too.

Mr. FULTON: You are speaking of a solemn right recognized under a treaty. The only case I know of which appears to come close to it is the Niagara power one, and I am not defending what was done by interests on the United States side. I suggest it is not really comparable, because there it was a contract between private parties, and it was not a right based on a treaty.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Would you not agree that this would be an occasion when you would think the government of the United States would be reluctant to act, because they were not as involved as they are now with this treaty, and they could wash their hands of the private interests, but they did not do so. On the other hand, they brought all the power of the government to bear on it.

Mr. FULTON: I am not quite sure. I come back to the statement made which I do not deny, that I do not think the treaty prevents the United States from objecting or bringing as much pressure as they want to devote to it. But I say that the decision will depend on factors which have to be weighed. There is no question that the right is preserved, and I think that Canadians will not be less ready to exercise their rights than as are the Americans now. Perhaps the discussion could be answered by consideration of alternatives. What are the alternatives? First, to divert now, which would not be possible because British Columbia said no. Second, not to divert at all; or third, to say that we will preserve the right to divert, and that is what we did.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Our opinion is that the veto of British Columbia need not have been decisive.

Mr. FULTON: Oh yes. We discussed that this morning and I do not think there is anything fresh in that situation.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): So that was not actually a complete bar.

Mr. FULTON: Well, there is 92(10) I admit. It would have been a pretty legalistic position for us to take if we did exercise 92(10) against British Columbia; that would be a pretty legalistic thing to do, to assert a right under provisions which many would argue were not put in there to support it. I do not know how we can be all legalistic on one side and practical on the other.

You say that the situation between us and the United States would have to be viewed entirely on the basis of the facts and past conditions. But does not the same situation prevail between Canada and British Columbia? Do we not have to be practical about this thing?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Yes, but what do you call practicability? Is it profitable for the government of Canada to risk at least the blocking of a possible power deal with a very serious water problem on the prairies? Do you think that is a practical position?

Mr. FULTON: But we have not done that.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): We will not go over that story again. I will not convince you, and you will not convince me; but you have gone this far, to suggest some doubt as to how open that door is.

Mr. FULTON: We are talking about diversion to the prairies, that is a diversion for consumptive use. Are you saying that the United States would have the right to deny it on any ground? Have they any ground on which to deny it when it is contained in the treaty, that the restriction on diversions does not apply to a diversion for consumptive use?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): No, but I suggest to you—

Mr. FULTON: You say that the United States would bring such pressure on us that if we wanted to make that diversion, we would be powerless to do so. I do not think that Canadians are that pusillanimous. Good heavens, no.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): If this were to be done, you would be doing it in the absence, in the first place, of any qualified legal opinion, or in the terms of a legal opinion. You have no basis for the statement that it could be done because such a question has not yet been decided, and it might very well go to the courts. The other is the question of the practicality of doing it.

Mr. FULTON: The practicality of doing it will not change the objective as far as our diversion to the prairies is concerned. I say that we could do it tomorrow or the day after the dams are built.

Mr. TURNER: On a point of order, I wonder. I know the witness is perfectly able to take care of himself, but should he not be protected from the things which Mr. Brewin brought up this morning? I think that Mr. Fulton's position has been made clear, at least to me.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I think it is, too, but wanted to make quite sure that it was clear.

The VICE-CHAIRMAN: Perhaps, you could have repeated the question already asked by Mr. Brewin and the answer.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): That is right, fine.

Mr. HERRIDGE: I have a question I wish to raise again.

The VICE-CHAIRMAN: Is it a supplementary question?

Mr. HERRIDGE: No, it is not supplementary to Mr. Cameron's question.

The VICE-CHAIRMAN: Mr. Turner.

Mr. TURNER: I wonder if Mr. Fulton has at hand a copy of the article in the April 1964 edition of *Engineering and Contract Record* written by Mr. James Ripley, to which he referred this morning in answer to a question by Mr. Byrne?

Mr. FULTON: I do not have a copy of the reprint, but I have a reproduction of the original article.

Mr. TURNER: This morning I thought with remarkable restraint you qualified some of the language in the article as scandalous, and I say with remarkable restraint because I think myself that perhaps this question was irresponsible journalism, in terms of the fact that Mr. Ripley professes to be a professional engineer.

Mr. BREWIN: Is this a question or is this Mr. Turner in the guise of putting a question advancing a lengthy opinion about this article? Surely he can question the witness on the article without first giving his views about it.

Mr. TURNER: I want to put it to Mr. Brewin that my preamble would be shorter by half if he let me speak.

The VICE-CHAIRMAN: I do not wish to have one rule in the committee apply to one member and another to another.

Could you curtail your observations on the author of that article, Mr. Turner? It might be helpful.

Mr. TURNER: On the first page of that article, which is page 45, in the right hand column, about halfway down I find this sentence, and I want to read it to you:

At a time when Canadians are becoming increasingly concerned about losing control of their economy and losing resources to foreign ownership and exploitation, it is inexcusable that any Canadian government should turn over a resource as large as the Columbia basin to foreign control.

Mr. Fulton, do you feel that the Columbia river treaty turns over complete control of that basin to the United States or to other foreign control?

Mr. FULTON: Definitely not, Mr. Turner. The terms of the treaty, when examined in an impartial manner, refute that suggestion, and the arguments upon which the refutation is based were exhaustively brought to the attention of Mr. Ripley, but he forbore to mention them in his article.

Mr. TURNER: Also, on that same page, page 45, the first page of the article, in the right hand column, I will read a sentence to you, Mr. Fulton.

The treaty was shaped for narrow political advantage and is being endorsed at present for the same reason. The attempt by both the B.C. and federal governments to justify these actions have produced a volume of propaganda and outright falsehoods.

Without asking you to touch on the libelous statements contained in that sentence, do you agree with the suggested motive of political advantage or with the statement as to the accuracy of the government's statements?

Mr. FULTON: No, and again I am rather surprised at a person who had discussed the matter quite fully with not only myself but with others intimately associated with negotiations, whether or not he accepted our view as being right or wrong and our conclusions as being right or wrong, using those words. In the concise Oxford dictionary I looked up the use of the word which I perhaps inadvertently used myself, the word "scandalous". It is defined as a thing which occasions a general feeling of outrage or indignation, especially as expressed in common talk. I think perhaps I chose the word better than I realized at the time because what is stated in this article, so much of it is this kind of bald

statement which is not true, imputations as to motive and so on which are not true and are offensive and scandalous, while other parts of it are things which are demonstrably false in detail.

Mr. TURNER: You say that Mr. Ripley had access to the facts and arguments of the negotiators upon which to base these statements which were not true.

Mr. FULTON: Yes. I do not say that Mr. Ripley owed a duty to anybody to change his mind as to where the net advantage or benefit lay, but I suggest a person who is supposed to be a qualified engineer and is writing with respect to a public issue in a journal which circulates amongst the public should at least suggest when he knows about it himself, that there are positive grounds for the view asserted by the other side and positive grounds upon which they came to their conclusions from the best motives, not the wrong motives he suggests here. I find that Mr. Ripley, in an earlier article, has listed the people he talked to. This is in his article in the same magazine of September, 1962. I think it is interesting to see his own list. The implication is that at least a large number of these must have agreed. He lists the people he talked to and says that after talking to them he came to these conclusions. He talked to Michael Barkway; Mr. Bassett, deputy minister of lands and forests; Mr. Bloomfield; Professor C. B. Bourne, University of British Columbia, faculty of law; David Chance, secretary, International Joint Commission; Mr. M. Cook, Department of External Affairs, Ottawa; E. Davie Fulton, minister of public works, L. Higgins, economist, Ontario Hydro, Toronto; G. J. A. Kidd, Columbia coordinator; Dr. Keenleyside, co-chairman, B.C. Hydro and Power Authority; Mr. Libby, Crippen Wright Engineering, Vancouver; Mr. MacCallum, legal advisor, International Joint Commission; Mr. R. C. McMordie; Mr. Gordon MacNabb; General McNaughton; A. F. Paget; Mr. Patterson, department of northern affairs; Mr. Pennington; Mr. E. R. Patterson, department of northern affairs; I am certain he means engineer with I.J.C.; Mr. Gordon Shrum and Mr. R. G. Williston. Of that list I wonder how many agreed with his conclusions, and yet the inescapable inference from what he has said and the way he has put it is that after talking to these people he found that the majority supported what he was saying.

Mr. TURNER: Perhaps, Mr. Fulton, we ought to treat it as "believe it or not". I choose not to believe it. It is a pity that an excerpt of this article has been published in the *Financial Times* as well as in the *Toronto Telegram*, and I hope your words will receive some sort of publicity in return.

On page 3 of the article, which is page 47 of the magazine, at the top of the right hand column Mr. Ripley says:

In addition the treaty specifically prohibits diversion for power purposes, or diversion of any kind out of the basin. It is also open to serious doubt, whether we will even be able to make the Kootenay diversion into the Columbia, in spite of the treaty provision for this.

I realize you dealt fully with the question of diversion this morning and this afternoon, but have you anything in particular to add in immediate answer to that statement?

Mr. FULTON: Yes, I have. The statement is manifestly false and the reverse of the fact. It says, "in addition the treaty specifically prohibits diversion for power purposes, or diversion of any kind out of the basin." Let us look at what the treaty says, that except as provided in this article, neither Canada nor the United States of America shall, without the consent of the other as evidenced by exchange of notes, divert for any use other than a consumptive use any water from its natural channels. To say therefore the treaty specifically prohibits the diversion for a consumptive use is completely contrary to the

facts. The right to divert for a consumptive use is not restricted to the basin at all. As I say, the treaty specifically permits it. There may be a difference of opinion, but to say the treaty specifically prohibits it is grossly to misrepresent the treaty.

Mr. BREWIN: I have a supplementary question. Is Mr. Fulton not aware that the supreme court of the United States and other authorities have defined consumptive use as riparian use, use for the people within the basin, not outside? There is at least a considerable argument there.

Mr. FULTON: The writ of the supreme court of the United States does not run here.

Mr. BREWIN: Is it not regarded as an authoritative court?

Mr. FULTON: What I am saying is that there may be a legal argument here—and even that is to stretch the point—but to say the treaty specifically prohibits it is not true.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Would you not say that the writ of the supreme court of the United States would be authority to which the United States would refer if they were going to challenge it?

Mr. FULTON: The interesting thing is that a very authoritative American in Washington said that diversion out of the basin can be made.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): The supreme court?

Mr. FULTON: No.

Mr. TURNER: Have you anything further to say in answer to the statement just read?

Mr. FULTON: No; that is the whole fact.

Mr. TURNER: Further down the same page, in the third paragraph, in the right hand column there is this sentence:

The Americans wanted, and managed to obtain, complete control over, and unrestricted use of, Canadian water for consumptive purposes for all time; firm power now; peaking power later; and flood control always. For this enormously valuable water, they pay us nothing.

Do you feel there is anything in the treaty which permits the United States to control Canadian water for these purposes?

Mr. FULTON: No. The whole statement is based on an exartordinary misapprehension of what the treaty does. The misapprehension is so extraordinary that I cannot find words adequate to describe it. There are so many inaccuracies and misapprehensions that it is difficult to analyse them. Let us look at a few of them. There is no way in which the Americans have complete control over or unrestricted use of Canadian water for consumptive purposes for all time.

Then there is the statement "firm power now; peaking power later; and flood control always." They have the right to call on us for flood control so long as we leave the water in the channels, and if they do call beyond 60 years they have to pay compensation. They have no right to say we must leave the water here. Then there is the statement, "For this enormously valuable water, they pay us nothing." Of course, they do not have the use of that water as stated here, and what use they do have of our storages we are recompensed for in an amount which is considered adequate by most Canadians, I believe. Those are some of the things which are wrong in that statement.

Mr. TURNER: I am not going to take you through all the other statements in this article.

Mr. FULTON: There is one other point. The statement that the United States can obtain control must assume that the United States exclusively is going to

determine what is in the plan of operation. The treaty specifically provides that both entities will draw up the plan of operation, and that no one can insist on a change from the plan which would constitute a major departure without the consent of the other government. To assert that the United States has control again is contrary to the fact of the treaty.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I have a supplementary question.

Mr. TURNER: Would Mr. Cameron examine the witness in his own time?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I have a supplementary question which clearly needs to be answered now. Evacuation of the storages listed hereunder will be guarded by the flood control storage reservation diagrams and refill will be as requested by the United States entity after consultation with the Canadian entity. Do you consider that as giving equal authority to the Canadian entity?

Mr. FULTON: The operating plans are made in accordance with Annex A which I will read later. This portion refers to flood control as such, a very restricted portion of the whole operation. The impression created by this statement in the article is that they had control over the whole of the water. In some areas, yes, in order to get the benefit we will operate it in a way that will be most helpful; but we ensure that that operation will not inhibit our power operation. Therefore, we are prepared to accept that basis for arriving at the plan. What is said here is an attempt to generalize what is a specific situation and say that it applies to the whole treaty, whereas the general situation is that contained in Article 2 of Annex A which reads:

A hydrometeorological system, including snow courses, precipitation stations and stream flow gauges will be established and operated, as mutually agreed by the entities and in consultation with the permanent engineering board,—

The flood control operation within this has to fit into the plan, so paragraph 5 has to be read in conjunction with paragraph 2.

Mr. TURNER: I am not going to bring you through each one of the statements which I think you could challenge in this article, but I do want to turn to the last page—page 60 of the April issue of the *Engineering and Contract Record*. I make the observation that I am not taking you through each one of the statements in this article because I would not like it interpreted later that these were the only statements I sought to challenge. On the last page, half way down the first column there is this paragraph:

The best interpretation one can put on the terms indicates that Canada just about breaks even. The worst interpretation carries terrible implications for Canada's future. The country cannot afford even the possibility that the latter version will prevail. It would mean:

Alienation for all time of the water supply of the Columbia basin.

Permanent commitment to provide dead storage in Canada for United States needs.

No chance of ever providing cheap power on the Fraser or water to the prairies.

No flexibility to use Columbia water for new opportunities that we may not be able to foresee at the present time.

Let me take you through each one of these separate statements. First of all, do you agree that on the best interpretation of this treaty, we only break even?

Mr. FULTON: No. We gain a substantial net advantage.

Mr. HERRIDGE: What is it?

Mr. FULTON: The power rights to which we are entitled, the payment for flood control protection, and the springboard which provides for the future great developments on the Columbia, and the over-all low cost of power which will thus be produced.

Mr. TURNER: Secondly, do you agree we have alienated for all time the water supply of the Columbia basin?

Mr. FULTON: Definitely not. We have preserved the right to make such use as we wish of up to 90 per cent of the flow of the Kootenay, and have reserved the right after the expiration of the treaty to divert the water into the Fraser. During the period of the treaty we have the right to make consumptive use diversions. We have retained these rights and, furthermore, we have committed to use under the treaty only a portion of all the storages—one of the most important storages; that is the Mica creek storage. This indicates complete flexibility of the operation there. I could go on into a number of other factors which prove the falsity of this assertion here.

Mr. TURNER: Do you agree with the statement—

The VICE-CHAIRMAN: Hold it for a moment. I am sorry to interrupt you, Mr. Turner, but I thought I would like to bring to the attention of the committee that it is now 5.30. We have had two hours of pretty extensive and exhausting questioning of the witness. I do not think it is our intention to run some sort of a marathon or to place the witness in such a position. We who have engaged in this sort of activity in other contexts realize that it can be exhausting.

Mr. TURNER: I just have the other three parts of this question.

The VICE-CHAIRMAN: Yes, and then I have Mr. Macdonald, Mr. Ryan and Mr. Herridge. There may be one or two others who have some questions to ask.

Mr. Fulton has an engagement this evening and tomorrow we have a representative of the British Columbia federation of labour appearing before the committee. I do not know how long this representative will take to present his brief. If we could complete our questioning by 6 o'clock or a little after perhaps it would be agreeable to Mr. Fulton. But, if there are going to be a great many more members who wish to ask questions perhaps it might be better if we adjourned after a short while. Could I have the opinion of members of the committee on this aspect?

Mr. HERRIDGE: I think we should be able to conclude in the time you mentioned, Mr. Chairman. I have one short question.

The VICE-CHAIRMAN: I just wanted to get an idea. If that seems to be the general consensus, would you continue, Mr. Turner.

Mr. TURNER: Mr. Fulton, I draw your attention to the statement that permanent commitments to provide dead storage in Canada for U.S. needs is a necessary result of the treaty. Do you agree with that statement? I understand dead storage cannot be released in any event.

Mr. FULTON: This is a technical thing which I hope I will be able to interpret correctly. As I understand it, it is that portion of a storage reservoir which cannot be committed for use; that is, it cannot be drawn down because it is below the outlets.

Mr. TURNER: How you provide that storage?

Mr. FULTON: It cannot be drawn down and will not be. How then can it be alleged that it is for the benefit of the United States. This is such an extraordinary distortion of the facts that it is impossible to describe.

Mr. TURNER: In other words, it does not make sense?

Mr. FULTON: It just does not make sense.

Mr. DAVIS: It is hardly a comment worthy of an engineering journal.

Mr. TURNER: I subscribe to that statement.

The VICE-CHAIRMAN: It would be helpful if we refrained from gratuitous observations.

Mr. TURNER: Now, you have had a good deal to say about this statement but since it is put in a bland form I want to ask your opinion about it.

Does that mean there would be no chance of ever providing cheap water on the Fraser or water to the prairies?

Mr. FULTON: No, in my opinion it does not. I cannot avoid saying again that I base that assertion of the right to divert to the Fraser on the clear and specific wording of the treaty. I might point out we had to wage a strenuous battle with the United States negotiators to get written into the treaty the re-creation of the boundary waters treaty situation after the termination of this treaty, and it is that which forms primarily the basis of our assertion that we have that right. It is a specific provision in the treaty, as I say, which is contrary to what is said here. The same applies to the diversion of water to the prairies for consumptive use. As you will note, the words of the treaty specifically provide that.

Mr. TURNER: Then Mr. Ripley does an editorial job and omits most of that material from his article.

Mr. FULTON: I realize I am wrong; the treaty does not provide for the diversion of water to the prairies but a specific reservation of the right to divert for consumptive use makes it possible to divert to the prairies for this purpose.

Mr. TURNER: Then Mr. Ripley took some editorial liberties in respect of that part of the treaty?

I gathered from your earlier remarks this afternoon, which were to the effect it was your opinion that Canada should retain its flexibility for the use of Columbia water, that you would not agree with the last statement, that the treaty would mean there would be no flexibility to use Columbia water for new opportunities that we may not be able to foresee at the present time.

Mr. FULTON: Again, the answer is that that is incorrect on the basis of many of the features I mentioned earlier in the course of replying to questions. There are the other dams which can go in at Downie creek and Revelstoke canyon, which could be used below Mica creek. One of the reasons we retain flexibility is to maximize at site production in Canada, and that is one kind of new use or opportunity. We retain the rights to make diversions for consumptive purposes. I do not think Mr. Brewin would argue we cannot do that within the basin or if an opportunity or new commitment or requirement arises within the basin that we cannot use the water for that. We can use it for irrigation purposes, which should be an increasingly important use within the basin and so on. We can use it in many ways and, by deliberate calculations, we retained this kind of flexibility of operation and use of water. I admit we certainly accepted some restrictions. We accepted those restrictions necessary to agree to a pattern of operation within the limits that would create the entitlement to the benefits, and that is all we did. And, for that restriction on our right to use we got for the duration of the treaty these very valuable benefits for the immediate short term and also long term by way of subsequent developments on the Canadian side of the Columbia which will be made possible.

Mr. TURNER: Thank you, Mr. Fulton. I am grateful to you for the answers which you have given. There is not one thing to back up what Mr. Ripley tried to bring before the committee.

Mr. MACDONALD: My question relates to the technical act of drafting the treaty. Mr. F. J. Bartholomew asserted the United States authorities prepared the original draft and, in doing so, deprived us of further rights; he also asserted that 75 per cent of the final draft is the work of United States draftsmen. Is that statement true or false?

Mr. FULTON: I know Mr. Bartholomew and I respect him personally. But, I am afraid Mr. Bartholomew had no way of knowing what the facts were and his statement is not in accordance with the facts. As a matter of fact, at the second last meeting of the negotiators when we sat down to work on the basis of a draft it was a Canadian draft we used as a basis. The two negotiating teams accepted our draft as a basis for our discussion.

The VICE-CHAIRMAN: Have you completed your questioning?

Mr. MACDONALD: Yes.

Mr. RYAN: On January 17, 1961, when the treaty was signed at Washington how were you going to finance the construction of the dams that were to be built in Canada under the treaty?

Mr. FULTON: Our offer to the government of British Columbia at that time was that we would be prepared to advance one half the cost of construction of the dams that was subsequently expended. We suggested we would do that by way of a cash advance to meet the cost of construction as these costs arose or by way of a guarantee of bonds, that is a joint guarantee of bonds to the extent of 50 per cent on our part, or if you want to create a joint entity then we would undertake to finance that entity directly to the extent of 50 per cent of its cost, 50 per cent by the federal government and 50 per cent by the province, by whatever method they wanted in respect of the capital cost of the dam required over and above the \$64½ million.

Mr. RYAN: Was there only the flood control payment to be advanced by the United States authorities?

Mr. FULTON: Yes, in cash, except such temporary sales of temporary power surplus as might be made down there, too.

Mr. RYAN: There would be a considerable amount of money to be raised by both jurisdictions?

Mr. FULTON: Indeed, and we took that into account in making our calculations. The total cost of construction of the dams is about \$350,000,000, as a preliminary estimate. It does not all arise at one time. It is paid progressively as construction proceeds. A nine year construction period was contemplated.

Mr. RYAN: How much do you have to guarantee in hand at that time?

Mr. FULTON: You do not proceed on that basis at all, either with a government or a private industry, so far as I know. You know what your capacity is to go to the money market if necessary. I am reminded of the table to be found on page 97 of the green book. This is on the new basis, is it not? Oh yes, this was a table put out and released accompanying a press release of the Prime Minister following the signing of the Columbia river treaty in Washington on January 17, and as an accompanying table. One of the tables, No. 6, shows a financial analysis of Canadian benefits and so on. This shows the way in which it was estimated that we would be able to meet the costs which are already projected. Column 7 of this table on page 97 shows the project's annual cost. And incidentally, it is interesting to note that all these calculations are based on an unfavourable assumption of 5½ per cent interest rate for these increasing costs. Our calculations showed that we would be well able to finance on an economic basis the cost of construction and the operation of these dams, and the last column, No. 12, shows the annual profits.

Mr. RYAN: You expect that both governments would issue bonds to get the money for it as they require it?

Mr. FULTON: That was our offer, yes.

Mr. RYAN: Was there anything in writing between the two governments in respect to this financing? Was this table agreed upon in writing?

Mr. FULTON: This table was not, no, it is just a federal press release. It did not attempt to apportion the costs as between the two governments. It simply showed the calculation of the over-all costs, and how they might be met. With respect to the writing, there was first the minutes of our meeting at which this approach was discussed, and there was later a draft memorandum of agreement incorporating this idea, which was prepared and discussed at the policy liaison committee.

Mr. LEBOE: As a supplementary question, I believe these advances were recoverable?

Mr. FULTON: Yes, they were to be recovered out of the profits.

Mr. RYAN: Does this table refer to all the projects?

Mr. FULTON: No, just to the three treaty projects.

Mr. RYAN: What were they at that time, I mean the three treaty projects?

Mr. FULTON: I am sorry. The passage of years has made me less familiar with these tables than I should be. This table refers only to Arrow and Duncan. It does not include Mica.

Mr. RYAN: How was Mica to be financed?

Mr. FULTON: On the same basis.

Mr. RYAN: This was just a table prepared for use at that time?

Mr. FULTON: No. Elsewhere they had entered into calculations, and this table was prepared, as I recall it, to show the situation with regard to Arrow and Duncan because it was not anticipated that they would earn themselves an at-site revenue annually, whereas Mica, being a potential power producer, was expected to earn a revenue annually as well. Arrow and Duncan would only receive the benefits of flood control payments.

Mr. RYAN: I intend to go into another area with my questions.

Mr. PUGH: My question is right on this point. Mr. Fulton, with reference to financing and the return of the money, for the sale, and of the return benefits to Canada, this would form part of the financing deal, would it not?

Mr. FULTON: Oh yes. The sale of downstream benefits in Canada was taken into the calculation of revenues which would be available in addition to support the project, as we expected that this would enable both governments to repay the money they had advanced for the construction.

Mr. RYAN: Mr. Fulton, I refer to article IV, clause 5, at page 62 of the green book, that is the white paper with the green back. This clause has been said to conflict with the diversion authorized by article XIII.

Mr. FULTON: I do not have your page reference.

Mr. RYAN: It is page 62 in the green book.

Mr. FULTON: Yes.

Mr. RYAN: Article IV, clause 5, the second clause from the top of page 62; this clause has been criticized as conflicting with the diversions authorized by article XIII that we had been talking about earlier; and at the top of page 67 of that green book they are criticized because diversion to the dams at Canal Flats and Bull river or Dorr would be water resources developments within the meaning of article IV, clause 5, and that this clause 5 and article IV prevents and limits diversion to the prairies. I do not think it is criticized on the basis that it—

Mr. FULTON: At the border?

Mr. RYAN: That it is a diversion into the upper Columbia.

Mr. FULTON: I think the answer to that criticism is this: the thing which must not be affected is the streamflow control in Canada on the Columbia river so as to reduce flood control and hydroelectric power benefits which the operation of the Canadian storage would otherwise produce. So long as we can continue to operate our storages in such a manner that they brought results downstream which, you see, is one of the objectives of the treaty, then we can alter the flow on our side, and at the same time that we do this, even reduce or even limit by the diversions permitted which are not for power purposes but for consumptive purposes.

Mr. RYAN: May I take it that it is your opinion that we could make a substantial diversion if we have to do so within the 60 year period?

Mr. FULTON: Yes, so long as we conform to clause 5 article IV, and so long as we continue the operations we have agreed to for 60 years.

Mr. RYAN: And the diversions made since?

Mr. FULTON: Kootenay flows, in addition, are not involved in the operating plan which we must follow in Canada.

Mr. RYAN: So really there would be an advantage if anything to the Columbia flow. Is that not so?

Mr. FULTON: Yes.

Mr. RYAN: Would you agree with perhaps the Peace river power coming in in such great quantity plus the cheap form of power to be generated at Mica in all likelihood, plus many other cheap power potential sources of British Columbia, such as gas, oil, coal, and now even nuclear power that this picture would threaten to glut the market? With the present picture at the time the treaty was re-negotiated, or the protocol and sales agreement gone into, would you say that it would threaten to glut the market, and that it was essential to make a sale of downstream benefits in order to save the treaty?

Mr. FULTON: No, indeed I do not agree with that interpretation, and may I make these exceptions to what you have said. The first treaty was not re-negotiated. We are discussing the same treaty which was negotiated and signed in January, 1961.

Mr. PUGH: Hear, hear.

Mr. FULTON: Secondly, this in my opinion was not owing to the fact to which you referred in respect of selling the downstream benefits, but was essentially as a result of the decision to give the Peace river development priority and to use the power for British Columbia domestic requirements.

Mr. GELBER: Do you think this was essential once the Peace river was developed?

Mr. FULTON: Yes, once that decision was taken there was no other way to go ahead with the Columbia other than to find United States markets for the total output for an appreciable period of time.

Mr. RYAN: That concludes my questioning, Mr. Chairman.

Mr. HERRIDGE: Mr. Chairman, I have just one question I wish to ask. I should like to refer back to downstream benefits return to Canada as a result of dams built in the United States by United States authorities in the future. My question is, would our share of downstream benefits that result from dams constructed in the United States in the future involve payments to Canada in addition to those provided for in the treaty?

Mr. FULTON: In annex B there is a table giving an outline of the base system including dams presently in operation or under construction which form

part of the base system. There is a note there in respect of the Wells project, although it was not then under construction, that when it or any other project on the main stem of the Columbia river is completed it will be integral components of the base system. We are entitled to one half of the extra output of power from all dams forming the base system which results from the operation of Canadian storage. If additional dams are added to the base system we receive one half of all the extra power that is produced and attributable to the operation of Canadian storage. There is a formula worked out in respect of this calculation.

Mr. HERRIDGE: Is this in addition to payments provided for in the treaty?

Mr. FULTON: That is not quite accurate. The treaty provides in respect of compensation in power or compensation regarding power production that we will receive one half of the extra power produced. This is not, as it were, a series of figures which are written into the treaty. We receive one half of extra power produced. The treaty contains in itself and in the annexes a basis of calculation to determine the extra power which is produced at United States plants existing or potential as a result of the operation of Canadian storage. We receive one half of that extra power.

Mr. HERRIDGE: Do we have any estimates in this regard?

Mr. FULTON: Yes. Initially it will be in the order of $1\frac{1}{2}$ billion kilowatt hours. At page 99 of the blue book there is a projected estimate for each year. As I recall, it is calculated to be about 6.6 billion kilowatt hours per annum as our share of the downstream benefits for the first year during which all our projects are operating.

Mr. HERRIDGE: In other words, we do not receive any extra payments not provided for in the treaty?

Mr. FULTON: We will receive our earnings which will be increased by one half of the power produced attributable to Canadian storage and I refer to the extra power produced by any United States plant to be constructed on the main stem of the Columbia river.

Mr. HERRIDGE: Have you any idea how many plants will be constructed?

Mr. FULTON: We know of the two at the moment, Wells and Ben Franklin.

Mr. HERRIDGE: Thank you.

The VICE-CHAIRMAN: Gentlemen, we seem to have concluded our questions.

I should like to thank Mr. Fulton very much for his attendance before this committee and for his very lucid answers to the questions.

The committee will meet again at nine o'clock tomorrow morning at which time we will hear the representatives of the British Columbia Federation of Labour.

I hope members of the steering committee will note that we are meeting at 7.30 this evening in Mr. Matheson's office.

The committee is now adjourned.

Appendix P

Yesterday I mentioned a figure for the value of Canada's flood control revenues over the period of the Treaty of about \$178 million. I could not verify it at the time. The officials have since had time to do some calculations and the following are the results:

- A. If Canada had elected to receive annual payments rather than a lump sum we would have received a total of \$156,500,000 (U.S.) by the end of the Treaty.
- B. Instead, we elected to receive a lump sum equal to the discounted value at $3\frac{7}{8}\%$ interest of the annual values. This will total \$64,400,000 (U.S.) when the projects are completed.
- C. If the lump sum payment of \$64,400,000 (U.S.) is considered as an annuity at 5% interest it is equal to annual payments totalling \$189,900,000 (U.S.) over the period of the Treaty.
- D. Therefore, by electing to receive the lump sum payment capitalized at a low interest rate, Canada realized the equivalent of an additional benefit of

\$189,900,000 (C)

\$156,500,000 (A)

\$ 33,400,000 (U.S.) over the Treaty period.

- E. The payment Canada realizes under the Treaty (\$64,400,000 U.S.) because of the low interest rate at which it is discounted, is worth more to Canada than the value of annual payments for flood control in perpetuity with money at 5% interest.

E. D. Fulton.

HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964

STANDING COMMITTEE

ON

EXTERNAL AFFAIRS

Chairman: JOHN R. MATHESON, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 24

WEDNESDAY, MAY 13, 1964

COLUMBIA RIVER TREATY AND PROTOCOL

WITNESS:

Mr. E. P. O'Neal, Secretary-Treasurer, British Columbia
Federation of Labour

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

STANDING COMMITTEE ON EXTERNAL AFFAIRS

Chairman: Mr. John R. Matheson

Vice-Chairman: Mr. W. B. Nesbitt

and Messrs.

Brewin,	Fleming (<i>Okanagan-</i>	Leboe,
Byrne,	<i>Revelstoke</i>),	Macdonald,
Cadieux (<i>Terrebonne</i>),	Forest,	MacEwan,
Cameron (<i>Nanaimo-</i>	Gelber,	Martineau,
<i>Cowichan-The Islands</i>),	Groos,	Nielsen,
Cashin,	Haidasz,	Patterson,
Casselman (Mrs.),	Herridge,	Pugh,
Chatterton,	Kindt,	Ryan,
Davis,	Klein,	Stewart,
Deachman,	Konantz (Mrs.),	Turner,
Dinsdale,	Langlois,	Willoughby—35.
Fairweather,	Laprise,	

(Quorum 10)

Dorothy F. Ballantine,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

WEDNESDAY, May 13, 1964
(42)

The Standing Committee on External Affairs met at 9.00 a.m. this day, the Chairman, Mr. Matheson, presiding.

Members present: Mrs. Casselman and Messrs. Cadieux (*Terrebonne*), Cameron (*Nanaimo-Cowichan-The Islands*), Chatterton, Davis, Forest, Gelber, Groos, Haidasz, Herridge, Klein, Leboe, Macdonald, Matheson, Patterson, Pugh, Ryan, Turner, Willoughby—(19).

In attendance: Mr. E. P. O'Neal, Secretary-Treasurer, British Columbia Federation of Labour.

The Chairman presented the eighth report of the subcommittee on agenda and procedure, dated May 12, 1964, which recommended as follows:

1. That Mr. Cliff Parker, International Union of Operating Engineers, Vancouver, who was previously scheduled to appear on Monday, May 18th, now be notified to appear on Tuesday, May 19th, at 10.00 a.m.;
2. That Mr. J. D. McDonald, Rossland, B.C., who has asked to appear before the committee, be notified that the committee will hear his presentation on Tuesday, May 19th, at 3.30 p.m.;
3. That applications to appear before the committee will be considered if received by the Chairman or Committee Clerk by 5.00 p.m., Tuesday, May 19, 1964;
4. That the suggestion that Mr. James Ripley be summoned to appear be held in abeyance.

On motion of Mr. Davis, seconded by Mr. Patterson, the report was approved.

The Chairman reported that correspondence has been received from Beryl M. and Wilfred G. Detta, Burton, B.C.; Alberta Area, United Electrical Radio and Machine Workers of America, Local 551, Camrose, Alberta; Local 515, United Electrical Radio and Machine Workers of America, Toronto (two telegrams).

The committee resumed consideration of the Columbia River Treaty and Protocol.

The Chairman introduced the witness, Mr. O'Neal, who read a brief on behalf of his Federation, and was questioned.

The questioning being concluded, the Chairman thanked the witness for appearing before the committee.

At 10.05 a.m. the committee adjourned until Thursday, May 14, 1964, at 10.00 a.m.

Dorothy F. Ballantine,
Clerk of the Committee.

EVIDENCE

WEDNESDAY May 13, 1964

The CHAIRMAN: Gentlemen, I see a quorum.

I beg to present the eighth report of the subcommittee on agenda and procedure. Your subcommittee on agenda and procedure met on May 12, 1964, and agree to recommend as follows:

That Mr. Cliff Parker, International Union of Operating Engineers, Vancouver, who was previously scheduled to appear on Monday, May 18, now be notified to appear on Tuesday May 19, at 10 a.m.;

That Mr. J. D. McDonald, Rossland, British Columbia, who has asked to appear before the committee, be notified that the committee will hear his presentation on Tuesday, May 19, at 3.30 p.m.;

That applications to appear before the committee will be considered if received by the Chairman or committee clerk by 5 p.m., Tuesday, May 19, 1964;

That the suggestion that Mr. James Ripley be summoned to appear be held in abeyance.

May I have a motion for the approval of this report?

Mr. DAVIS: I so move.

Mr. PATTERSON: I second the motion.

The CHAIRMAN: Is there any discussion? Will all those in favour so indicate. Contrary?

Motion agreed to.

We have the pleasure this morning of hearing Mr. E. P. O'Neal, who comes to us in the capacity of secretary-treasurer of the British Columbia Federation of Labour. Mr. O'Neal advises me that his submission has been reduced to basic principles, and it is so short that he would like to present it in total. As you will notice, it is actually less than four full pages.

Mr. E. P. O'NEAL (*Secretary Treasurer, British Columbia Federation of Labour*): Thank you, Mr. Chairman.

Mr. Chairman and members, the British Columbia Federation of Labour appreciates this opportunity of presenting its views in the matter of the proposed Columbia River treaty and protocol.

The treaty concerns extremely complex problems in several fields, the objectives of the three jurisdictions involved further complicate its execution. Our federation does not presume to be competent to evaluate the technical formulae evolved by the negotiators. Therefore, our submission will deal only with certain fundamental principles we believe to be essential to a sound treaty.

I. Control of Water Resources

It has been said that the protocol will:

- (a) Place a significant portion of the Columbia Water System under the permanent control of the United States.
- (b) That water storage will be so situated as to reduce at site power in British Columbia, and

- (c) That the right to future diversion of water for Canada's own needs is not specified.

If the Committee does indeed find these deficiencies in the proposed protocol, our federation must express objection to them.

In general terms, our federation is opposed to the exporting of any primary products, raw materials or resources which can be processed at home. We believe this is essential if a viable, industrial economy is to flourish in British Columbia and Canada. Any large scale export of hydro electricity or failure to produce at site power when feasible, would appear to violate sensible policies of industrial development.

The criticism regarding future diversion rights is, in our opinion, a most important one. Our own provincial needs will increase with industrial expansion and population growth. The needs of the prairie provinces must also be considered in the light of recent evidence of lowering water tables. The industrial, agricultural and social implications of current water resource decisions will doubtless be crucial to the future well-being of all western Canada. Already, the problem of water scarcity is common in many areas of the United States where hitherto this resource was available in abundance.

We are confident that your committee is aware of these problems and will note our opinions regarding them.

II. Termination policy

Our Federation believes that it is essential that the treaty include provisions for the termination of certain agreements regarding power production and water storage and diversion.

It is not only conceivable but expected that industrial development will require, and population growth in British Columbia and the prairie provinces will exceed, present hydro electric power potentials over the life of the treaty. There may well be an urgent need for both Columbia water and power during the latter years of the treaty and provisions should be made for such possible emergencies at home.

If not during the life of the treaty, then at least upon its termination, Canada must take steps to provide for adequate water and power supplies from the Columbia river system. Unless this necessity is spelled out now in the protocol, Canada will be in a poor position to assert her rights 50 years hence. The United States, unless forewarned, could plead a breach of their reliance on the water rights which allow them to build many costly developments below the border.

Canada must not be swayed by the expenditures which the United States is contemplating on her own projects. During the 60 years of the treaty, the United States will get full return from her developments and Canada should repatriate her own interests without any qualms.

III. Ancillary considerations

Apart from the actual terms of the treaty itself, our federation believes that certain portions of the monetary considerations involved must be specifically apportioned to named purposes involving the ancillary problems of the development scheme.

Purposes for which finances should be specifically earmarked include natural resource care, that is proper cutting, clearing and harvesting of affected wood areas, new community planning and development, special industrial development for the new communities, relocation provisions, etc.

Agreements as to financial amounts, as well as to specific performance in these necessary areas of activity must, we believe, form an integral part of the obligations the treaty imposes upon this country. We are fully aware that a final treaty will be the product not only of technical considerations but of political negotiation.

In recent years, there has been a proliferation of opinions and public debate over the various proposals for the development of the Columbia river. Partisan political view points must yield to a dispassionate consideration of the opportunities and challenges a properly executed treaty could provide for all Canadians.

Our federation expresses its confidence in your committee and we are appreciative of this method of receiving public opinion on the matter.

Conclusion

In conclusion, we submit the following points which, in our opinion, might be used as criteria in weighing the merits of the present protocol:

- (1) Provision for future domestic power needs.
- (2) Provision for rights to water diversion.
- (3) Provision of compensatory funds for specific ancillary needs.
- (4) Provision for a maximum utilization of unionized Canadian labour and materials on all phases and operation of the project.
- (5) Provision for repatriation of all Canadian interests on termination of the treaty.
- (6) Provision for the establishment of a Columbia River Authority to ensure that all aspects of reconstruction and relocation are affected in a planned and orderly manner.

This is respectfully submitted for your consideration on behalf of the British Columbia Federation of Labour.

The original of the brief is signed by the officers of the federation.

Mr. MACDONALD: Thank you for expressing yourself so briefly and succinctly.

In the first paragraph I notice you use the term "protocol". Do you not mean there the treaty and protocol together?

Mr. O'NEAL: Yes.

Mr. MACDONALD: In your third and sixth conclusions you deal with areas which are substantially areas of responsibility for the provincial government. Are you suggesting that the federal government should take over the Columbia valley authority and that that should be a federal agency?

Mr. O'NEAL: Our view was that there should be some kind of planning committee and we would hope it would probably be a joint committee. We realize the provincial government is primarily responsible since it is in that jurisdiction, but there might be some area of co-operation. For instance, on the Peace at the moment there is a great deal of unemployment. Much of it stems, of course, from the tremendous publicity which has been given to this project and which has resulted in workers coming in from all over the country, finding there are no immediate opportunities for work, and then being compelled to obtain unemployment insurance or social assistance. We believe it is important that all the agencies of federal and provincial governments might be used in this kind of area.

Mr. MACDONALD: Then you use the term "protocol" again. I think you mean something broader. The arrangements are between the provincial and federal governments for development on our side; we do not have to negotiate with the United States.

Mr. O'NEAL: We mean whatever understanding or memoranda might be involved.

Mr. MACDONALD: So really, you would agree, would you not, that the fact that the treaty and protocol do not contain a provision concerning arrangements

which would be of a purely Canadian federal and provincial nature does not make the treaty defective?

Mr. O'NEAL: Yes, I would agree.

The CHAIRMAN: Mr. Chatterton.

Mr. CHATTERTON: Did your organization contribute towards this committee?

Mr. O'NEAL: Our federation does not support or contribute towards the Columbia river for Canada committee, nor do we support the statements which I read in the press, made by that committee.

Mr. CHATTERTON: They were so unreasonable, I am not surprised that you do not support them.

Mr. HERRIDGE: Are any of the unions affiliated with the British Columbia Federation of Labour supporters financially or otherwise of that committee?

Mr. O'NEAL: I think there are three or four unions who make some financial contribution to the Columbia river for Canada committee.

Mr. DAVIS: I wonder if Mr. O'Neal would be kind enough to give us a brief description of the composition of the British Columbia federation?

Mr. O'NEAL: We represent some 240 unions in British Columbia. I think we have a membership of from 105,000 to 110,000 members. It is made up of unions in the construction industry, such as the I.W.A. Our president Mr. St. Eloi is also president of the building trades council which represents some 30,000 people in the construction industry. Mr. Moore is the vice-president of I.W.A. which has a membership of about from 34,000 to 35,000. It is quite a good cross section of organized labour in British Columbia, indeed, it embraces the vast majority of the labour movement in British Columbia.

Mr. DAVIS: Could you give us a rough estimate of the percentage of total wage earners in employment in British Columbia who are covered by the federation?

Mr. O'NEAL: I could better give you the percentage of the organized labour force in British Columbia. It is about 160,000 of which we have approximately 110,000.

Mr. DAVIS: You have 110,000 out of 160,000?

Mr. O'NEAL: Yes.

Mr. DAVIS: Thank you very much.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): In your conclusion No. 4 you mention "provision for a maximum utilization of unionized Canadian labour and materials on all phases and operation of the project". I presume you have seen the legislation which has been passed in British Columbia in regard to the construction program on the Columbia river project, although I think it has not yet been declared. However it deals with the subject of the movement of workers, and it is legislation affecting labour compensation and so on. Has your federation made any representations on that legislation at all?

Mr. O'NEAL: Are you speaking of the legislation which refers to government employees?

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Yes.

Mr. O'NEAL: We have constantly made representations to the British Columbia provincial government concerning the legislation it has passed affecting government employees.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): What response have you had?

Mr. O'NEAL: To date I regret to say that we have had very little response.

Mr. MACDONALD: You made specific reference to government employees. I take it you are familiar with the arrangements for workmen to be at site in these projects. Would you not recognize the fact that arrangements concerning workers could be worked out in detail with the Canadian Labour Congress?

Mr. O'NEAL: I think there are two different things we are talking about; one is a collective agreement entered into between the unions involved and the constructors only. In so far as that is concerned, if it meets with the approval of the principals involved, then I think it is their business.

Mr. MACDONALD: Mr. Cameron's question was with respect to employees of the British Columbia Power Commission which is an entirely different thing.

Mr. O'NEAL: I believe Mr. Cameron's question makes reference not only to government employees but also to crown agencies which were taken over, concerning which this legislation was passed restricting and inhibiting their rights under the collective agreement.

Mr. MACDONALD: It does not affect employees on that particular project?

Mr. O'NEAL: That would be a matter of negotiation, I would imagine.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): At the top of page 3 of your brief you make reference to the proper cutting, clearing, and harvesting of affected wood areas. Have you had an opportunity to read the evidence of Mr. Williston on the point of clearing the sites?

Mr. O'NEAL: No, not all of it.

The CHAIRMAN: You just referred to newspaper reports.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Just the newspaper reports?

Mr. O'NEAL: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You may have noted he stated to the committee that it is no longer necessary to make a clearing of the areas to be flooded. Has your federation had any discussion with the government about it?

Mr. O'NEAL: We have not had a discussion with the government on this specific project, but we have annually made them aware of our views on this matter. We have a natural resources committee and we work very closely with the fish and game clubs which are also quite concerned about this. In our view all possible precautions should be taken to ensure that everything that needs to be done is done to clear up any snags or trees or anything like that.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Finally, in your conclusion No. 5 you mention "provision for repatriation of all Canadian interest on termination of the treaty". Could you elaborate on that, as to what you had in mind there?

Mr. O'NEAL: Well, in our opinion—and again, Mr. Chairman, as I stated at the outset—we do not profess to be experts, on either the technical or the political implications involved in this, but we do believe that while it is in the present context it may or may not be the best or the worst treaty. But the time which has to be referred to in the context is the future. What is the situation going to be like 20, 30, to 40 years from now?

It is because of this that we say provision should be made now, because in 50 years time it would be very difficult if the necessary steps are not taken now to repatriate Canadian interests in the Columbia river.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): In your conclusion No. 6 you speak of a Columbia river authority. Would you envision it as being restricted to aspects of reconstruction or relocation?

Mr. O'NEAL: Reconstruction in the sense we have used it is to be regarded in the broadest possible way. It would encompass not only relocation of these people, but also the social problems involved in the relocation of families, with trying to give them a start again, and with all the things which will be needed to bring them to a kind of orderly community after this project has gone through.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): It may not have any connotation of the Columbia river authority somewhat along the line of the Tennessee valley authority?

Mr. O'NEAL: That is the kind of authority we mean.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Your federation would be in favour of considerable participation by the federal authorities in this whole project?

Mr. O'NEAL: Yes, we would like to see the federal government speak, because we feel that while the project is in British Columbia, and while we are of course all very concerned with British Columbia, nevertheless it is also of interest and concern to the rest of Canada, and of vital interest to the rest of Canada, so for that reason we think the federal government should be interested and involved in it.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): And it is on that basis that you make the suggestion?

Mr. O'NEAL: We would like such an authority.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): I notice that you laid stress in the early part of your brief on the future requirements of other parts of Canada.

Mr. O'NEAL: Yes.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Your federation would view as a mistake any provision in the treaty which might lead to closing the door to any use of the Columbia river project for that purpose?

Mr. O'NEAL: We believe that the resources of any part of Canada are the resources of all of Canada if required, and it is in this context that we make this suggestion.

Mr. PATTERSON: Reference has been made to closing the door. Yesterday we had as our witness Mr. Fulton who definitely stated that there was no such thing envisaged. In fact he said that it was definitely ruled out by the treaty, and that there was an open door. Would you agree with that?

Mr. O'NEAL: We have stated that we will leave it to the committee to decide whether it is or not. We do not profess to be experts. These are things which we simply draw to the attention of the committee in the hope that you will peruse them very carefully, and if you find in your judgment that this is not the case, you will correct it.

Mr. KLEIN: Mr. Chairman, I would just like to comment here on two sentences in this brief which I think sum up, for me at least, the whole purview of the hearings. In the second paragraph of the opening statement you state:

Our federation does not presume to be competent to evaluate the technical formulae evolved by the negotiators.

With all due respect, I do not think there are many members of this committee who are competent to evaluate the technical formulae evolved by the negotiators. The second sentence which I think sums up the whole purview of this committee is on page 3, the third paragraph from the top, where you say:

Partisan political viewpoints must yield to a dispassionate consideration of the opportunities and challenges a properly executed treaty could provide for all Canadians.

So far as this committee is concerned, and so far as I am concerned, I think these two sentences sum up the whole situation, because I do not think we are competent any more than you are to discuss the technical aspects of this treaty. What I would like to ask you is: Assuming that the conclusions you arrived at are provided for in the treaty, I take it then that you would favour this treaty very vehemently.

Mr. O'NEAL: I would like to answer in this way. I think if the provisos we indicate were included, the treaty would be improved enormously from its present form.

Mr. KLEIN: Are you of the opinion that these conclusions are not included?

Mr. O'NEAL: I am not voicing an opinion on it. All I am saying is they might be spelled out more clearly. I think they lack the clarity we would like to see.

Mr. KLEIN: Assuming this has been provided for, I take it you would favour the treaty?

Mr. O'NEAL: We have mixed emotions about the treaty, because it does provide cheap power for other people. We would like to see Canadians take full advantage of the resources of the Columbia river, if possible, at home, and if there was an excess of power after the domestic needs were met, then at that time it could be dealt with.

Mr. KLEIN: You mention the opportunities and challenges that a properly executed treaty could provide for all Canadians. I take it, then, that if there were a properly executed treaty, this would be an excellent opportunity and a wonderful thing for Canada. Otherwise your sentence has no meaning.

Mr. O'NEAL: I think we now have got past the point of no return on this.

Mr. KLEIN: I am asking you, on the assumption that this treaty contains the conclusions that you have arrived at, is this a great opportunity for Canada?

Mr. O'NEAL: It provides an opportunity for British Columbia and Canada if all this power can be generated. If they have a right to divert, we say it is a good thing.

Mr. KLEIN: It would be a good opportunity for Canada?

Mr. O'NEAL: It would be a good thing.

Mr. GELBER: I am interested in your conclusion No. 6, concerning the Columbia river authority. Mr. Cameron mentioned that you probably are thinking of T.V.A. and he asked you whether you were interested in advocating federal participation in the Columbia river authority. Have you made representations to the government of British Columbia on this?

Mr. O'NEAL: No.

Mr. GELBER: Do you intend to?

Mr. O'NEAL: Yes, we do.

Mr. GELBER: In a sense, would you not agree that the functions of T.V.A. really are the joint functions today of the government of British Columbia and the British Columbia Hydro Electric Commission; that is, that they really are doing all the things that T.V.A. is doing, or those are their responsibility.

Mr. O'NEAL: I think the T.V.A. goes a little farther than that.

Mr. GELBER: Would you say it goes farther because it involves more than one state, and because these states were not producing hydro at the time?

Mr. O'NEAL: I think it goes further in that it is the direct arm, as it were, of the federal government, and the federal government certainly is in the position to direct the policy and program of the T.V.A. to a much greater degree than the states are.

Mr. GELBER: I am not talking about authority, but rather the functions. The functions which T.V.A. is performing really are functions which exist within the existing entities in British Columbia between the government and hydro.

Mr. O'NEAL: I think the essential provision is that the functions it performs are functions which arise from the course which is charted for it by the federal government to some degree.

Mr. GELBER: As I remember T.V.A., Senator George Norris was a great advocate and did not want the government to produce power; but the government of British Columbia is producing power and I am wondering whether we are not using a phrase which appeals to all of us, because we are sympathetic to the objective, and record of T.V.A., and whether actually this does not exist within the competence of the British Columbia authorities now.

Mr. O'NEAL: I think this is a very involved question because of the jurisdiction involved. I would expect we are not unmindful of the problems which now exist, so far as problems between a province and the federal government are concerned in many areas. I would like to see the federal government more directly involved in this, because it might be that other provinces need water. I think it might be advantageous if the federal government could persuade the British Columbia government to go along with this kind of an arrangement.

Mr. GELBER: I would think the first persuader should be the British Columbia Federation of Labour.

Mr. O'NEAL: We are quite happy to do it.

Mr. GELBER: But you have not approached them on this?

Mr. O'NEAL: We have approached them on the over-all treaty. There have been some revisions to the treaty, and it was not at the stage where we thought we should go into this request at our last meeting which was held some eight months ago with the provincial government.

Mr. HERRIDGE: The British Columbia Federation of Labour at its conventions has discussed the question of a power policy with British Columbia in the development of the Columbia river.

Mr. O'NEAL: Yes, sir.

Mr. HERRIDGE: Has it passed any resolutions?

Mr. O'NEAL: Yes.

Mr. HERRIDGE: Would you give those to the committee?

Mr. O'NEAL: I cannot give you the exact resolution, but in essence it means we are opposed to the export of any natural resource from British Columbia which can be used in Canada or in British Columbia.

Mr. GELBER: Do you mean 'used economically'?

Mr. O'NEAL: Efficiently and economically.

Mr. HERRIDGE: I have a document published by the British Columbia Federation of Labour which is distributed as a public service.

The CHAIRMAN: Is this a document published by this witness' organization?

Mr. HERRIDGE: Yes. It says:

Labour is advocating the following steps to further develop British Columbia's power resources:

Development of the Columbia river project as soon as possible. Labour favours the McNaughton plan which would eliminate the High Arrow dam project and the flooding of thousand of acres of valuable British Columbia land.

That is the federation's attitude?

Mr. O'NEAL: Yes; that was our attitude at that period of time.

Mr. HERRIDGE: Has the convention changed this decision?

Mr. O'NEAL: I think we have to make decisions in the light of current events. Since then the Peace river development has gone ahead. This document was published before the Peace river project got underway, and it was our view and our opinion that the cheapest power for British Columbia would be through the development of the Columbia river. We now are faced with a situation where the Peace river is going ahead. I think in the light of this we have to look at our policy again.

Mr. LEBOE: Mr. Chairman, I have a supplementary question. In view of the fact that there is a uniform domestic price for power at the present time and they are aiming toward this goal in respect of industrial power in British Columbia, would not this be a factor of your thinking in connection with the attitude that you take toward the treaty. To me, it would seem to be fundamental.

Mr. O'NEAL: Of course, we are interested in the lowest possible price for power domestically and for industrial use and, in our consideration, the Columbia would provide the lowest possible power for British Columbia. That was the reason we supported the Columbia over the Peace. We felt upstream development of power in British Columbia would mean the development of the Columbia river before the development of the Peace.

Mr. LEBOE: But when the uniform price is paid by the consumer there is just the one price, no cheap power; in other words, only an over all price on power.

Mr. O'NEAL: Yes.

Mr. HERRIDGE: There is this comment as well on page 3:

Bennett's insistence on selling Columbia power to the U.S. has been described by Justice Minister Fulton as "the greatest betrayal of Canadian interests that it would be possible to contemplate." Labour agrees!

Does labour still take that stand?

Mr. O'NEAL: Yes. We agree it is wrong to sell our downstream benefits.

Mr. HERRIDGE: Therefore, on that basis you are objecting to the long term sale of firm power in respect of this treaty?

Mr. O'NEAL: Yes.

Mr. MACDONALD: Would you not say, now that the Peace river power has come in, that you recognize the downstream benefits cannot be used efficiently in Canada and, therefore, the downstream sale is inevitable.

Mr. O'NEAL: I do not say it could not be used. I think we can use only so much power at this period of time. Our position was that the Columbia river provided the cheapest power. That document to which Mr. Herridge refers was some three years ago and we were then advocating the development of the Columbia because we believed it would provide the cheapest power. Since then our premier has had different views and he has gone along and developed the Peace, which is going to put a lot of power into the power system of British

Columbia. But, we still believe before the treaty expires we will need additional power in British Columbia and this is why we suggest a very careful look should be taken at the long term sale of power.

Mr. HERRIDGE: Would you say that although the British Columbia Federation of Labour has not changed its views, in principle it favours the development of the Columbia along the lines suggested in the so-called McNaughton plan?

Mr. O'NEAL: I would say that we generally supported the McNaughton plan three years ago.

Mr. HERRIDGE: And your views have not differed in principle in that connection?

Mr. O'NEAL: No. I think, in the main, and from a point of view of ideals we still feel it would have been far better to have gone along with the Columbia along the original lines.

Mr. WILLOUGHBY: I would like to clear up the impression of the witness in respect of the first conclusion, the provision for future domestic power needs. I think he has shown a very realistic attitude toward the thinking that Columbia river power undoubtedly is our best power but at the same time we must appreciate the fact the Peace is going to supply power for at least a minimum of 10 to 12 years for the future requirements of British Columbia. Do you not agree that for the duration of this treaty power for domestic use in British Columbia is available from the Peace, Mica, Murphy, Revelstoke canyon and all the other power plants that are available under this scheme and then after the conclusion of the treaty we have the right to divert water for our own use.

Mr. O'NEAL: I would agree for the next 10 or 12 years there is sufficient power to meet the needs of industry.

Mr. WILLOUGHBY: That is in respect of the Peace alone?

Mr. O'NEAL: Yes. It is difficult to project beyond that. But, what we are concerned about is if the needs arise and without getting into an involved dispute with anyone we would be in a position to divert water for power. We are not sure that the present protocol clearly spells this out.

Mr. WILLOUGHBY: You do not consider that the power available through Mica and these other dams will create enough power to supply British Columbia for the next 50 years?

Mr. O'NEAL: I would not like to answer yes or no to that question because I do not think I am competent. But, in addition to the question of power there is the question of water, which is extremely important.

Mr. HERRIDGE: In reply to a question yesterday Mr. Fulton said he thought the people of British Columbia were getting the more expensive power from the Peace and that Columbia power was cheaper. Do you agree?

Mr. O'NEAL: Oh, yes. I think most people agree it is going to be difficult to judge the price of the Peace power. I would not venture to make any estimate on it. But, it probably will be fed into the system and mixed with other power, as a result of which it will be difficult to come up with an actual price for it. I believe most experts feel that the Columbia would provide the cheapest power for British Columbia.

Mr. GELBER: I have a supplementary question. Would you not agree that the lump sum which British Columbia would receive within a few months to build all these capital developments within British Columbia should be included in your estimate of the net value of power in British Columbia?

Mr. O'NEAL: I think that would be a rather shortsighted view to take in respect of a payment of this kind. As I said earlier, I think you are going to have to look forward to the next 15 or 20 years and then calculate what this

\$275 million means at the present time. I suppose when Alaska was bought it looked like a very good deal, but with inflation and other things the view was probably changed in that connection.

Mr. GELBER: But you have these reservoirs and dams which are to be built, with the resultant creation of jobs, and you can amortize this over the life of the contract in terms of the price of the power. If that is so, why is it short-sighted?

Mr. O'NEAL: It may be the water will be more valuable than power 40 years from now.

Mr. GELBER: Is that not a separate argument. I thought the question concerned the relevant price of power coming from the Columbia and from the Peace and I was wondering whether the capital sum which British Columbia will receive to build all these developments should not be included as part of the benefit which British Columbia will receive, in comparing it with the cost of power from the Peace.

Mr. O'NEAL: It would be a rather strange method of bookkeeping I suggest, sir, to take money that you receive from one project and credit it to another. In doing that I think you would also have to credit the cost of the other projects. So, it might reduce the power. But, I think it would be kind of a superficial return.

Mr. GELBER: Is that not the only kind of bookkeeping you can do when comparing two projects?

Mr. O'NEAL: I would not like to answer that question.

Mr. DAVIS: Mr. O'Neal, I thought I noticed a hesitation on your part when you referred to cheap power for others—and you presumably meant cheap power in the United States—as a result of this treaty. Would you still agree it was a good treaty if there was more power made available in Canada compared with the power made available in the United States and if it was cheaper than the additional power in the United States? If that was the case, would you think then it would be a good treaty.

Mr. O'NEAL: In reply, sir, I think the introduction of the Peace at this stage complicated or muddled the waters a bit. It was a fairly clear issue before this but now I think it has become an extremely complex one. I think the availability of cheap power in British Columbia is very important to the development of that province, and it was from this point of view we were approaching the question.

Mr. DAVIS: The treaty project will take close to a decade to complete so we are really projecting ourselves into the 1970's in any case. What I was really interested and asking about was your opinion. Cheap power will be available in the United States as a result of the treaty. Would you still agree that this is a good treaty if we had a potential in Canada that was larger and at a unit cost lower than that in the United States? In other words, looking at the Columbia river project and the treaty, and the consequences on both sides of the international boundary, knowing there will be more and cheaper power available in Canada as a result of this development, would you still feel that it is a good treaty?

Mr. O'NEAL: I think that is one aspect of the situation which should be considered. As I said, our prime concern is directed toward the long range provisions of the treaty. The approach you have suggested may be a short range point of view but in our view the provisions which are conditional for repatriation and for the diversion of the water are the things with which we are very concerned.

Mr. DAVIS: Are you aware for example that the on site power which can be produced in Canada as a result of the treaty will be initially at least four times the amount of the downstream effect?

Mr. O'NEAL: Yes.

Mr. DAVIS: You are aware of that fact?

Mr. O'NEAL: Yes.

Mr. DAVIS: With the passage of time the ratio will move increasingly toward Canada; do you realize that?

Mr. O'NEAL: Yes, we are aware of that fact.

Mr. DAVIS: You do realize that this is not purely a treaty that produces downstream benefits but that it also produces cheap dams and power at a lower cost in Canada?

Mr. O'NEAL: Yes, it has those effects.

Mrs. CASSELMAN: Mr. O'Neal do you not think that the experts you have mentioned in your introduction had the same aims in view that you have expressed, namely, the best possible treaty that can be negotiated? It seems to me that some of your worries are very intangible. You say that we are not competent to evaluate the situation. As has been suggested, most of us are not competent to make such an evaluation, but these experts who have worked for years with these aims in mind should have some competency in this regard and we must trust the best people available. We could argue indefinitely in respect of intangibles which are related to the future.

Mr. O'NEAL: Madam, I believe we are apprehensive because we have heard so many experts express so many different points of view. Had we wanted to we could have listed arguments on both sides. People, who undoubtedly, as you suggest have the best motives and are just as idealistic as we are have expressed extremely sharp divisions of opinion and I feel this is what has caused the apprehension. I believe this has caused concern and apprehension in the minds of all of us and that is why we hope this committee will weigh the facts very carefully before making any recommendation.

Mrs. CASSELMAN: The treaty must be the result of a combination of technical, political and negotiating possibilities and it seems to me that, therefore your objections are almost entirely in respect of intangible things in the future, which have been provided for as far as humanly possible.

Mr. O'NEAL: I wish we could agree with you that these things have been provided for as well as possible. We believe that the doubts and divisions of opinion which exist are reflections of the apprehensions even on the part of those experts who despite their studies and competence to make judgments are still divided on the issue.

Mr. RYAN: Would you agree, Mr. O'Neal, that only one of the real inside negotiators of the treaty has shown any measure of disagreement, and I refer to General McNaughton?

Mr. O'NEAL: I believe that Mr. Fulton has also expressed some disagreement and he was one of the inside negotiators as you put it.

Mr. RYAN: Mr. Fulton told us yesterday that he was not disagreeing with the treaty at all but quarrelled mainly with the sale of surplus power over the border.

Mr. O'NEAL: That may be what he told you yesterday but he has said a great many other things in disapproval of the treaty.

Mr. PATTERSON: Is it possible that the former statements made by Mr. Fulton were based on the same premise as you have used, that the situation which existed three years ago is entirely different from the present time?

If I understood Mr. Fulton yesterday he had changed his point of view as a result of the development of the Peace river and in order to be realistic he felt that the treaty was good.

Mr. O'NEAL: I would not presume to answer for Mr. Fulton, sir.

Mr. HERRIDGE: Mr. O'Neal, I was interested in your brief and your high hopes that this committee will consider this treaty thoroughly and come to some reasonable conclusions. Are you aware of the fact the Hon. Paul Martin when he appeared before this committee suggested that the committee either had to accept the treaty or reject it and had no opportunity to amend it? Do you agree with that attitude toward this committee's function?

Mr. O'NEAL: That is a rather difficult question for me to answer, sir. I think it would be rather pointless to have a committee unless that committee intended to evaluate the opinions and statements it had received. I am not a politician, sir, and I do not know how to answer that question.

The CHAIRMAN: I think you have proved that you are a very able politician, Mr. O'Neal.

Mr. DAVIS: Are you aware, Mr. O'Neal, that the government has a minority of members in this committee, hence reason must prevail, and that we have listened to everyone with great interest?

Mr. O'NEAL: I think everyone appreciates the fact that this committee is receiving the views of so many people who have a vital interest.

Mr. PUGH: Have you had an opportunity of reading Mr. Fulton's statement?

Mr. O'NEAL: I have read what he has been reported in the press to have said.

Mr. PUGH: In reference to Mr. Herridge's question regarding amendments, what would you specifically ask to be amended?

Mr. O'NEAL: We are not asking for specific amendments. We leave that function to this committee. The provisos we would like to see clearly spelled out are listed at page 3 of our brief. We have listed six points we would like to see covered.

Mr. PUGH: Your brief seems to be very general in suggesting that this committee should look into this situation. Your brief is being presented now after a great number of briefs, submissions and answers to questions have been heard in this committee in favour of the treaty. I am wondering whether you or your committee has read our proceedings.

Mr. O'NEAL: We have read as much of the proceedings as we have had an opportunity to read, sir.

Mr. PUGH: Do you feel that your questions have been answered?

Mr. O'NEAL: No, I do not think so, sir.

Mr. PUGH: Specifically what do you think has not been answered?

Mr. O'NEAL: We have not come here to make specific recommendations to this committee because we do not believe that is our function.

Mr. RYAN: Perhaps you could indicate to us where the lack of consideration exists.

Mr. O'NEAL: We feel that the provisos we have listed should be considered and form part of any understanding at which you arrive. We suggest that we are not competent technically or politically to make judgments and have attempted to set out a general course or guide we think should be followed.

Mr. KLEIN: I take it you would like to see a treaty adopted?

Mr. O'NEAL: We are obviously at a stage at this time which would indicate that such an event will be inevitable.

Mr. KLEIN: In the interests of labour you would like to see a treaty adopted; is that right?

Mr. O'NEAL: I am not sure I can answer your question on behalf of my organization.

Mr. KLEIN: I am not now referring to the type of treaty that should be adopted, but in the interests of labour you would like to see a proper treaty adopted?

Mr. O'NEAL: We certainly would like to see a proper treaty adopted.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): Mr. O'Neal, a moment ago you said that this committee has heard a great deal of evidence from persons vitally interested in the project. I am now wondering what you had in mind when you made that statement?

Mr. O'NEAL: Mr. Fulton was obviously interested in the project and I am sure that everyone who has taken the time to come and appear before this committee is interested in the project.

Mr. CAMERON (*Nanaimo-Cowichan-The Islands*): You did not have in mind people who had a personal interest in the project?

Mr. O'NEAL: No, I do not think I would suggest they had a personal interest.

Mr. PATTERSON: In your conclusion you set out six principles. You have stated that you feel that these ought to be incorporated in the treaty or in the protocol. Now, after a thorough study and analysis of the treaty and protocol are you of the opinion that these principles are not included?

Mr. O'NEAL: If they are, I do not think they are spelled out in the way we would like to see them.

Mr. PATTERSON: But you are not sure whether they are or are not?

Mr. O'NEAL: We are asking this committee to see that they are spelled out here.

The CHAIRMAN: If that concludes the questioning, I would like to report that subsequent to my earlier report to you I have received a letter from Wilfred G. Detta and Beryl M. Detta of Burton, British Columbia.

Mr. HERRIDGE: All good people.

The CHAIRMAN: We have also received three telegrams, one from Toronto signed by B. Hope, J. Charbonneau, J. McColl, N. Durdle, G. Deeks, A. Loftus, J. Hanks, and L. Cunningham, from local 515, United Electrical Radio and Machine Workers of America, and another one from Toronto signed by J. Cucio, M. Choma, E. Waffler, S. Chodorek, R. Butler, D. Howell, C. Johnson and Mary Wesley from local 515, United Electrical Radio and Machine Workers of America, and a third one from Camrose, Alberta signed by George Gee of Local 551, United Electrical Radio and Machine Workers of America.

Perhaps hereafter I will not read the signatures in full because I am afraid this takes longer than I intended.

I beg to report that the next meeting of this committee will be held on Thursday, May 14 in room 112N. The witnesses at that time will be the technical advisers who have been referred to us by the government of the province of Saskatchewan in a communication from the Hon. Mr. Lloyd. The meeting is adjourned.

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